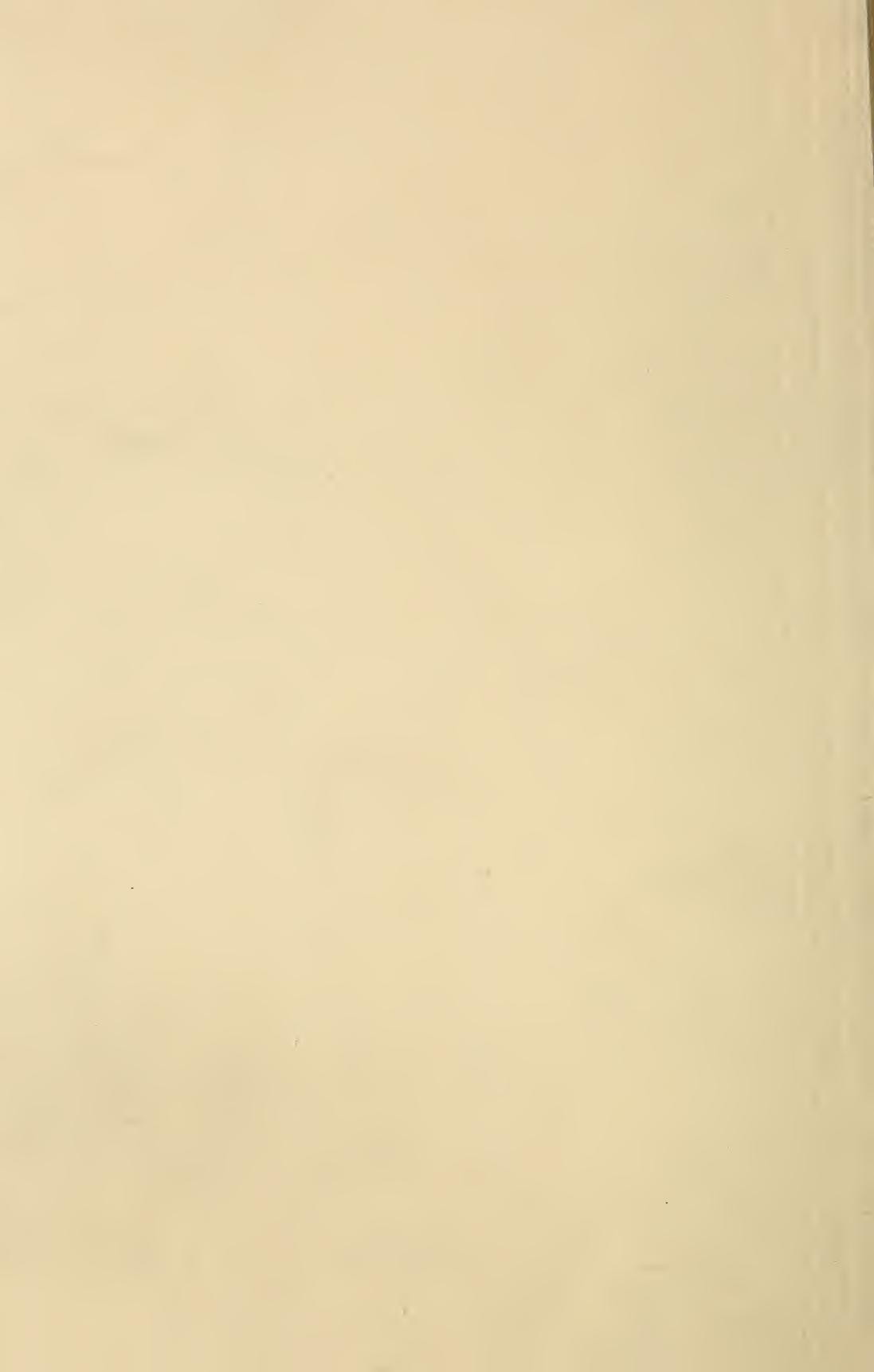


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CLEANINGS &
A JOURNAL
DEVOTED
TO BEES,
AND HONEY,
AND HOME
INTERESTS.

BE CULTURE

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No. 14

STREW STRAWS
FROM DR. C. C. MIELER.

PLEASE, Messrs. A. I. Root Co., don't bring a live *Apis dorsata* into this country until you know they can be domesticated. [You need have no fears on that score.—Ed.]

MANY REPORT honey coming in well, especially in white-clover regions, but figures in Honey Column are not very encouraging. Still, I'd rather have big crop with little price than little crop with big price.

BEE WORK crowds so that I had to get up at 3 this morning to finish these Straws. [I have thought, doctor, that you seemed to be quite busy; but you are rather reticent as to whether or not you are getting honey. I suspect you are.—Ed.]

IN GRADING honey, is there any need of demanding that both sides of a section be immaculately white in order to take highest grading? When on the table, if the upper side is white, does it matter if the other side be darkened?

AFTER-SWARMS, Isaac Lundy says, in *Review*, he prevents by putting a cone escape on the mother colony. Why not? If no bees are allowed to enter the hive about the time the young queen emerges, but are compelled by the escape to join the swarm, the destruction of the other queens may be relied upon.

E. H. SCHAEFFLE finds that bottom starters have a bad habit of curling over—p. 486. If top and bottom starter are only $\frac{1}{4}$ inch apart, the bees fasten them together the first thing, and that prevents curling. [Bottom starters had a fashion of curling over for us last year. It is possible we made them too wide. Ours were about $\frac{1}{2}$ inch.—Ed.]

PROBABLY it will be the best way for foundation-makers to paper foundation unless ordered otherwise, but I think it will be economy, for us Northerners at least, to order all founda-

tion unpapered. [If our customers will specify whether they want their foundation papered or unpapered we shall be very glad to comply with their wishes, whichever way they may choose.—Ed.]

IF THE FIGURES on p. 487 are correct, it's necessary to make our bees' tongues only one-ninth longer to bring them up to *dorsata*. It ought not to be so very hard to accomplish that, seeing there is considerable difference in different colonies. [It only goes to show how ridiculous are the claims that *Apis dorsata* would have tongues so much longer that they could reach into flora that our own bees could not.—Ed.]

NOW WE HAVE the Medina mark—1000 sections folded in 40 minutes, and 1000 starters put in in 2 hours. Common people who reach the half of that may be well satisfied. One thing that helps the starter business in Medina is that small starters are used and the sections thrown into a basket. With full starters they should be placed directly in the supers—don't know but they ought to anyway—and that takes more time.

E. E. HASTY ought to be drummed out of the regiment—always raising troublesome questions. In *Review* he goes on after this fashion: "Is it not usually the case with any sample of honey, that its flavor is the joint result of two flavors—one secreted by the plant and one contributed by the bee? Is it not possible that most of the flavoring contributed by the plant is taken out of the nectar the day it is brought in, and stored in the bodies of the bees, and restored later on in a somewhat altered and less volatile form?"

L. A. ASPINWALL thinks the chief cause of swarming an abundance of bees of all ages, with the following as adjunct factors: "Temperature, ventilation, drones, pollen, honey, the influence of a honey-yield extending into a failure of the honey sources, the swarming-impulse, the inherent tendency, and, lastly, that under the circumstances of supersEDURE."—*Review*. [The sentence containing the "ad-

junct factors" is, it seems to me, a little involved—at least I do not clearly understand what is meant, although I think he is trying to tell us what we already knew.—Ed.]

A DISCOVERY is reported in the *Australian Bee Bulletin*, in prevention of swarming. Just turn the hive upside down once in nine days, and the bees will destroy the queen-cells. The *Bulletin* may save its readers much disappointment by saying that the same discovery was made in this country several years ago, and, after extensive trial, it proved a failure. Bees don't always destroy the cells, and, besides, they often swarm with only eggs in queen-cells.

I MUST PUT IN just a word for Punics. You say, Mr. Editor, they have hardly a redeeming quality; but from my limited experience the one redeeming quality is an important one. They're great workers; and if I were working for extracted honey I shouldn't object to some of the blood in my apiary. But they couldn't be tolerated for comb honey on account of filling the cells so full as to make the combs look watery. [I said, doctor, that they had hardly a redeeming quality. They may be a little better than the average Italians or hybrids, for extracted honey, but I doubt very much whether they are. Their bad qualities put them considerably behind in the race with other bees.—Ed.]

IT IS TRUE, Mr. Editor, as you say, that "the general run of customers do not take kindly to candied honey." But that leaves it still an open question whether it might not be best for producer and consumer that they should be educated to it. Muth's experience is not on paper. Better sell granulated honey to a man taught what to do with it than to sell liquid honey to a man who doesn't know what to do with it when it candies on his hands. [There may be some truth in what you say; but it is uphill work to educate the public. Most of the bee-keepers and dealers with whom I am acquainted seem to have come to the conclusion that it is better to keep honey liquid as long as possible; and when it candies, exchange it for liquid.—Ed.]

DAVID N. RITCHIE feels sure *Apis dorsata* can be domesticated, and that they should at once be imported to test the matter of their acclimatization. If their domestication is established, no one will object to their introduction. What I object to is their introduction before we know they can be domesticated. [It looks to me, in view of what was published on pages 487, 488, from the pens of those who have been in the native homes of the *dorsata*, that it is exceedingly doubtful whether they could ever be domesticated. But, nevertheless, GLEANINGS desires Mr. Rambo to give the matter a test when he returns to his missionary labors.

In view of this, speculation from those who are not personally acquainted with *A. dorsata* in their native climate is worse than useless.—Ed.]

"BEE-KEEPERS," says Editor Hutchinson, "have one bad habit. If they agree with their editor they write and pat him on the back. If they don't agree with him they keep still. They ought to write to him just the same, if they don't agree with him." All of which is more or less true. But, say, W. Z., some editors have a bad habit. They'll publish only what's written them on *their* side. [Yes, both subscribers and editors are quite inclined to believe the way they *want* to believe. The subscriber is too much inclined to write to the editor agreeing with him; and the naughty editor is very much inclined to publish that side of a question which accords with his views, or, perhaps, more exactly, his *prejudice*. I believe I am as human as anybody else; but I have often tried, to give greater emphasis to the side that is opposed to my own opinions.—Ed.]

THE *American Bee Journal* is now faithfully working on the report of the St. Joe convention that got water-logged more than two years ago. The last five numbers have been occupied with Frank Benton's essay on honey-plants, which has grown so much in two years that it now fills about six pages of the Old Reliable. It is, perhaps, the fullest thing of the kind ever written. [Yes, it is no doubt the fullest; but very often I have seen a long list of honey-plants, all of which have practically no bearing at all on the honey market, and the reader is led to believe that they all yield honey to a considerable extent. The honey-plants of importance in this country can almost be counted upon the fingers on one hand. It seemed to me, as I glanced over Mr. Benton's essay, that he was giving the unimportant ones almost as much prominence as the others.—Ed.]



By R. C. Aikin.

ALFALFA HONEY; ITS GRANULATING QUALITIES; A REPLY TO E. T. ABBOTT AND F. L. THOMPSON.

Mr. Editor:—I had not intended writing any thing more in regard to the granulation of alfalfa honey; but it seems to me that, while Messrs. Abbott and Thompson are thumping me, may be I had better hit back a little.

Now turn again to page 115 and see what I

said about it: "Now, while the body, color, and flavor are excellent, there is one feature that is against it; and that is its tendency to granulate. Alfalfa comb honey, as a rule, will not keep over winter without granulating to some extent, both in brood combs and in sections.

I suppose Mr. Abbott's article was intended to show that I misrepresented, more or less, alfalfa honey. That he utterly failed in this, I shall prove by his own words. The first sentence in the third paragraph of Mr. Abbott's article, page 321, admits every thing I said, for it reads: "I know that, generally speaking, alfalfa honey granulates very quickly; but I am inclined to think that this is due more to the way the honey is handled than to any inherent tendency in the nectar of the alfalfa plant."

I said it has a "tendency to granulate," referring to *alfalfa honey*, then qualified as to *comb honey*, by saying, "as a rule, will not keep over winter without granulating to *some extent*." Is not that both "generally speaking," and qualified too? The italics I have supplied here. Further, Mr. A. did not know what he was talking about when he intimates that it is "the way the honey is handled" that causes its granulation. More light on this farther along.

Let me quote Mr. Abbott again: "I am also of the opinion that the tendency to granulate is due to a lack of 'body.'" Throughout the article he intimates that producers of alfalfa take unripe honey. In closing his third paragraph he says, "I incline to the opinion that the great tendency to granulate shown by extracted alfalfa honey is due to improper manipulation, and I would advise the other extracted-honey producers of Colorado to take a few lessons from Mr. Foster, and to work for quality rather than quantity, and then they will not say that all alfalfa honey will granulate in a short time. I know from experience that it will not."

Now, Mr. Abbott, just tell me who said, and where, that *all* alfalfa honey granulates, even in a long time? I wonder, too, if Mr. Foster's letter, which I quote hereinafter, will not throw some light on your "experience" whereby you "know" about these matters. Friend Abbott, before I leave you just let me ask you how many tons of alfalfa honey have you handled? what per cent did not granulate? was it heated after being extracted?

Mr. F. L. Thompson asks a few questions, pages 321, 322, which I will answer. Referring to granulation he asks: "Is it not true that there is a marked difference between early and late honey in this respect?" Yes, there is a difference. The early honey seems thicker, and does not granulate nearly so much in the comb, but does granulate when extracted. My experience with comb (section), kept over win-

ter, is that a small per cent will granulate. I have never kept more than a small amount, always dry but not warm.

The rest of your questions I can not fully answer; but in a general way I will say that my *opinion* is that straight alfalfa comb, kept as 99 out of every 100 bee-keepers or merchants would keep it, would granulate from 5 to 20 per cent. The cells would not become solid, but be a mixture of granules and liquid. My extracted always granulates, and so does all alfalfa extracted I have ever seen. One year there was a flow from red and alsike clover right at the start, and this honey did not granulate so solid as that a few days later, after the clover was cut down.

In order to be more certain, and that others besides myself might testify, I have sent out the following list of questions to a number of apiarists:

1. How quickly, and what per cent of your extracted alfalfa honey granulates?
2. What per cent of your alfalfa comb honey granulates if kept over winter?
3. Do the winter stores in the brood-combs granulate, and to what extent?
4. In the matter of granulation, how does alfalfa compare with other honeys?

Mr. Oliver Foster, Las Animas, Colo., replied somewhat in detail. He has given me his consent to use any part of his letter in print that I may wish, so I am going to use it all. I know that friend Abbott will want a lesson or two from it. Here is his letter:

In reply to your questions of the 22d, I have read with interest your article on the granulation of alfalfa honey, and also that of my friend Abbott. I think you are both in a measure right. My alfalfa honey, both comb and extracted, does, as a rule, granulate, but it does not seem to be confined to rule. Comb honey does not granulate until late in the winter, and then it does not get very hard unless honey has been previously extracted from the comb. I do not think my extracted alfalfa honey granulates sooner than basswood, clover, and heartsease of Iowa. If it did, I should not consider that an objection unless it also granulated quickly after melting, which it does not, if properly melted and if it is well ripened. Alfalfa honey may be very thick and not ripe. I think it can not be produced in perfect quality by ordinary methods. We use 40 to 45 L. combs to the colony, and then heat the honey before and after extracting to get it out, and through a fine muslin strainer. After storing in 60-lb. cans we let it granulate as hard and as soon as it pleases. Just before shipping we melt it with a slow heat in a water bath. It takes 24 hours to melt honey properly. We leave the cap screwed on tight while melting.

In answer to your questions: 1. Extracted alfalfa usually granulates at the approach of cool or cold weather; the time depends on season of extracting. Perhaps one to three per cent will not granulate at all; that is, of 100 1-lb. cans filled from the same lot, a few never granulate, whether having been heated or not. 2. I think about all alfalfa comb honey will granulate if kept over winter, unless it is kept in a very warm place—usually by Jan. 1.

3. The winter stores in brood-combs granulated last winter and three years ago to an extent affecting seriously the prosperity of many colonies; but I think it was owing to other than alfalfa honey.

4. In the matter of candying, alfalfa honey compares favorably with other honeys, except in the case of comb honey.

OLIVER FOSTER.

Mr. D. S. Jenkins, also of Las Animas, re-

plied, and I give his replies in abbreviated form, quotation-marks showing his own language:

1. "Comb honey (alfalfa), sealed before about the 4th of July, will keep over winter if kept in a warm place; but the same honey, if extracted, will granulate if not kept at a temperature of 145 to 150 degrees for about 24 hours. If the heat is applied as mentioned it will pass the winter and not granulate; but to start with the honey must be well ripened; otherwise it will granulate."

"I have samples of alfalfa extracted honey three years old that were heated, the samples being taken at 145 degrees, and each additional 5 degrees thereafter up to 190. The 145 to 165 granulated in about 68 days." The greater the degree of heat applied, the slower to granulate. "The 190 sample is not fully granulated yet. If Mr. Thompson will take a section of his fine comb honey that will not granulate through the winter, and pick the cappings off some of the cells and stir it with a pin, he will find that the cells so treated will granulate while the others will not."

2. "June comb honey, if kept in a warm room, will keep over winter; but if exposed to the cold I expect all of it to partly granulate."

3. "About 50 per cent."

4. Could not answer, experience being limited to alfalfa and cleome. "Some seasons worse than others." Gathered in damp cool weather it granulates worse than if gathered in hot dry weather.

Mr. W. L. Porter, North Denver, answered, and I give the gist of his replies:

1. "In 30 days, and sometimes sooner; cleome more slowly."

2. Had not observed closely, "but think 10 per cent on an average."

3. This question he did not answer in a general way, but says "winter stores are all granulated hard except in localities where cleome is abundant. I have cleome gathered two years ago in the brood-combs that is still liquid."

Mr. Porter has several apiaries. In regard to tendency to granulate, he puts sweet clover first, alfalfa second, and cleome third.

In 1889 I handled, from three apiaries, 12 tons of honey, principally alfalfa. In 1890 the crop was 12 tons. One year since, I produced 9 tons. The remaining years since 1890 have had from two to five tons each year, a total of over 40 tons in seven years, and about half and half comb and extracted. The comb has, all but a few cases, been marketed early, so I do not know how it kept. Of the extracted, about 99 per cent granulated, and nearly all inside of 30 days.

As to the body of this honey, it could not be extracted except warm from the hives, or by the application of heat. Many a time I have had to stop extracting because it would not

pass through a $1\frac{1}{4}$ -inch hole as fast as extracted in a two-frame machine, but filled up so the reel dragged in the honey. Mr. Foster says, "Alfalfa honey may be very thick and not ripe. I think it can not be produced in perfect quality by ordinary methods." I know no reason why not ripe if thick. I know the flavor of all honeys changes somewhat as they get older, but I understand the term "ripe" to apply to consistency, in its general meaning as applied to honey. I do not consider any honey of "perfect quality" produced by ordinary methods. An apiarist of large experience in the east has often told me that, in Colorado's dry climate, it was altogether unnecessary to wait for the honey to be sealed. I want mine sealed, or largely so.

I have before me samples of honey. First is one of white clover 13 years old. It was never heated, but granulated solid, and stayed so for two or three years, then gradually liquefied until about one-half liquid, where it remains unchanged. It has become about as dark as light sorghum molasses.

Next is a sample of alfalfa eight years old. This was solid for over a year, then became about one-fourth liquid, and remains so. Its liquid portion has become slightly amber in color. It was never heated.

Next is alfalfa five years old, once heated to liquefy. I do not know the degree of heat, but just enough to melt it. This soon granulated again, and is now about five-sixths granules.

I also have a sample three years old, never heated, but put into glass when extracted, and it is apparently all solid, and has remained so. This has not even been in a warm room. The first and second samples mentioned were at times in a warm place—one near a stove, the other in the gable of the honey-house. The heat helped to partially liquefy.

I have also a sample three years old, once liquefied, that has gradually granulated, till now it is about one-half to two-thirds granules. The last sample I have is two years old, liquefied by heat, and is now about nine-tenths liquid.

One thing is very noticeable in these samples: The honey in those to which heat was applied, when it does again become solid, is more strictly granules mixed with the liquid portion; but that which was never heated forms a body almost like lard, and quite firm.

I have liquefied tons of honey, but never tested the degree of heat necessary. This is one of the things I have planned to do, but as yet have never found time. I am scarcely an able-bodied man, but must earn my living, so I find it hard to do all the experimental work I wish. Time and money, properly applied, would soon settle many disputed points. Observing, however, as I go along, I have come to the conclusion that a low degree of heat, say but little above 100 F., if applied for several

days and continuously till the whole mass of honey is thoroughly heated and liquid, will do the work all right without injuring the color or flavor. By stove, where the heat is irregular (in water bath), I have never succeeded in liquefying so it would long stay liquid, unless it became so hot as to injure color and flavor, unless I continued the heat for 24 to 48 hours.

But I am drifting from my topic, and must return and bring this to a close. I must admit that my experience with other honeys than alfalfa is quite limited. I have produced some little basswood, a very little mustard, and considerable white-clover, heartsease, and Spanish-needle. I never carried a stock of comb very long, and do not remember to have had any of these granulate; but the extracted did granulate more or less, though none of it so quickly as does the honey here.

My sources here are alfalfa for 75 to 90 per cent, the rest being about equally divided between sweet clover and cleome. I did have some red clover, but it is about all gone now.

I think the time is very near when extracted honey will be marketed granulated, such as will granulate; and if it does become solid it will be no detriment—rather a help. If it is true that other honeys in the comb will granulate as freely as alfalfa, then the latter is sure to take the lead, for its color and flavor will find it a market. I once sent a sample of alfalfa extracted to a Chicago firm who are very extensive honey-dealers, and they said it was "without question the finest sample of extracted they had ever seen." This had been melted before sending, but was of the honey friend Abbott wants improved upon.

Must Colorado apiarists use exceptional methods that are not required by Missouri producers? No, friend Abbott; if we must use other than "ordinary methods," as Mr. Foster does, to get honey that will not granulate, it but proves my statements.

Usually the first honey gathered—that supposed to have the least tendency to granulate—is stored in the brood-combs. How comes it, then, that so much of it granulates? The first stored in brood-combs is the last to be used from them, yet we find a large per cent of this granulated.

Loveland, Colo.

THE ADVANTAGE OF NARROW BOTTOM-BARS.

OSBORN'S COMB-CARRYING CART—OBJECTIONS TO IT.

By O. Poppleton.

Nearly a year ago, Dr. Miller, in one of his *Straws*, asked any bee-keeper, who preferred and used narrow bottom-bars, to give the reasons for his preference. I intended to answer at the time, but it was overlooked.

Unless combs are entirely built down on to the bottom-bars, spaces will be left between the comb and bottom-bars. These spaces above wide bottom-bars are much more trouble to brush bees out of than when narrow bars are used. This, of course, applies to the production of extracted honey much more than when working for comb honey, and to me it is a very important point.

Theoretically, end-bars of frames should always hang in a hive a bee-space away from the sides of the hive, and never be fastened by the bees to the sides; but practically I have never seen that condition. Frames will sometimes get a little out of true; the sides of the hive may get a trifle warped, or something else not just right will diminish this bee space, and the bees will fasten frame and hive together with a mass of propolis. This makes extra work, costs time, is a draft on one's stock of patience, and a general nuisance.

There are several ways in use for remedying this, but I do it with my narrow bottom-bars, which are about $\frac{1}{16} \times \frac{3}{8}$ inch, a trifle longer than the made-up frame is long, and ends sharpened. These are not nailed on the bottom of the end-bars, but inserted in a kerf sawed in the lower ends of the end-bars, and allowed to project enough beyond the bars to keep them a proper distance from the sides of the hive. The use of these projecting bottom-bars enables one to handle frames more rapidly than otherwise, as they can be taken hold of with one hand, near the middle of the frame, and lifted out quickly and carelessly, with no danger of crushing bees between the end of the frame and the hive. Mr. John Bird, of Bradford, Ia., one of the most experienced and successful bee-keepers in the Northwest, told me last fall that he considered the projecting bottom-bars as one of the most indispensable features of good frames, because of the aid they give to rapid handling. He uses the Langstroth frame. He also told me that he values the narrow bottom-bars for another reason. Nearly every one who has wintered bees in the North knows how the accumulation of dead bees on or near the bottom of hives during long confinement in a cellar causes moldy combs. This can be mostly remedied by occasionally dragging the dead bees out with a bent wire—that is, if the wide bottom-bars of frames don't catch and hold the bees off the bottom-board. Narrow bottom-bars, of course, allow the dead bees to collect where the apiarist can easily prevent any undue accumulation.

On p. 336 of *GLEANINGS* for May 1st you picture a wheelbarrow for carrying combs of honey, and refer in your footnote to the cart used by Mr. Osborn, in Cuba. I used his cart long enough to learn it had several faults. One was its being so low down that it was very back-aching work to handle combs to and from

steadily all day. Another was that the combs run crosswise instead of from front to rear, and that caused more or less mashing of the combs against each other. Another trouble was the greater difficulty of keeping such a large box covered up from robbers. I prefer two or three smaller comb-boxes, holding the same number of combs in the aggregate, higher up from the ground, and with combs running from front to rear.

Stuart, Fla., June 5.

[Three or four years ago we started making the bottom-bars of all of our frames $\frac{3}{8}$ square, and personally I was much pleased with the results secured from them in our own apiary; but our customers protested. Finally we compromised by making a bottom-bar $\frac{3}{4}$ inch wide instead of $\frac{3}{8}$, as formerly. The only objection that can be named against the use of narrow bars is that the bees will sometimes build the comb clear past the bar, and attach it to the frame below. This applies only to where the hives are tiered up. Only yesterday (June 25) I was looking at some beautiful solid combs built clear to the bottom-bar. These bars were $\frac{3}{8}$ inch square; and in only a few cases are the combs built down to the bottom-bars $\frac{3}{4}$ by $\frac{1}{4}$ inch. I am half inclined to believe our customers didn't know what they wanted.

The idea of having a bottom-bar project past the end-bars a trifle was used by D. A. Jones away back in 1879 or '80. I know that, at the time I visited him in 1882, he was very enthusiastic over this feature, and wondered why we didn't incorporate it in our apiary. The fact of the matter is, the supply-dealer does not dare to deviate very much from standard accepted lines or he will hear a buzzing, not of bees, but of bee-keepers, around his ears.

Your objections to the O'born comb cart, I should say, are very well taken. A good cart for carrying combs is yet to be devised. I have thought that a cart might be made having two or three closed compartments, each compartment holding ten or twelve combs, and having lids that will close absolutely bee-tight. This cart should be high enough to prevent back-breaking stooping, and so arranged as to distribute the load on both sides of the axletree. After all, I am not sure but a light wheelbarrow, having on it three ordinary bee-tight hives, would be nearly as good. If, instead of the hives, boxes of the same dimensions made of $\frac{1}{4}$ -inch stuff were used, it would make the load a little lighter.—ED.]

LARD-CANS FOR EXTRACTED HONEY, ESPECIALLY FOR THE COLORADO MARKET.

A REGULAR UNIFORM PACKAGE INDORSED; BUT
SOLDERED CANS NOT AS DESIRABLE AS THE
STANDARD PAILS THAT WILL NEST.

By Mrs. A. J. Barber.

Editor Gleanings:—In your footnote to Mr. Aikin's excellent article you ask for the opinions of the brethren on the honey package question. I take the liberty (as ours is an equal-rights State) to give mine. The uniform package and trademark system is, no doubt, a good one, and I hope to see it carried out; but I want to enter a protest against the soldered cans.

To begin with, I do not see the necessity for

sealing at all. Colorado honey granulates so quickly that it is safe for any length of time in tin pails with close-fitting covers. We have sold thousands of pounds of extracted honey in the common lard-pails. The five-pound size holds $7\frac{1}{2}$ lbs., and the 3-lb. size 5 lbs. Being a standard article, and manufactured by thousands, they come cheap. As they can be nested they take up less room than straight cans, and we get better freight rates on them. The bail or handle makes the pail a more convenient package to handle than a can, and the pail is useful after the honey has been used up. The pails are easier filled and covered than cans that have to be soldered. The pails can be crated as easily as cans. We use 40-lb. apple-boxes. Such a box holds one dozen pails—six of each size. We have used them for two years, and have never had any fault to find with such a crate. It makes a neat package, and holds the pails securely, and is easily handled. Last year we sold several thousand pounds of granulated honey in such pails and crates, and have not had a single complaint, though the honey has been in all the mining towns in this part of the country. I believe it is a mistake to try to keep Colorado honey on the market in liquid form. Any one who knows any thing about this climate knows that honey always granulates quickly here; then why not face the situation squarely, and teach people that granulation is a test of the honey's purity. A neat label on every package, stating the fact, and giving directions for liquefying, will soon do the business.

To sum up: I claim that the pails have these advantages over the soldered cans: They are cheaper, and freight is less, as they come nested. They are much easier and quicker to fill and cover. They are handier for the buyer and seller also, as they have a handle to carry them by. They can be opened for inspection or trial, without injuring or defacing the pail. The vessel is useful after the honey is all used up. You can store a thousand of them in less space than five hundred straight cans would occupy, and you can get them from any wholesale hardware house by simply ordering three and five pound lard-pails instead of having to give a description of cans, and waiting for them to be made.

Now, having presented the case for the lard-pails I should like to hear what the advantages of the straight cans are, if any, over the pails.

Mancos, Col.

[The lard-cans that you recommend have long been used by the Dadants; in fact, that is their standard package for extracted honey when put up in a small way. The fact that these pails will nest together is a big point in their favor; but sometimes the honey will not candy solid. This is especially true of some honeys and some localities; and in some markets partially candied honey will sell at a great discount. Then, again, it is sometimes

desirable to make immediate shipments of extracted honey. If you had an order for a carload of extracted honey put up in lard-cans for immediate delivery, just as the honey came from the hives, it might be a problem as to how you would get this to a distant market without a good deal of leakage. Then, too, a package that is easily opened is liable to be tampered with by naughty boys and freight-handlers *en route*. The standard fruit-can package soldered tight will go safely, whether candied or not. Honey put up in these cans could be shipped immediately. Where honey is put up in nested pails it ought to wait till it is candied before it is ready for market.—ED.]

HONEY IN THE DANZENBAKER SECTIONS.

THE OPINION OF THE MAJORITY NOT ALWAYS RIGHT.

By B. F. Onderdonk.

Mr. Root:—The 1000 "Danzy" sections came to hand, and are highly satisfactory; the change in width of bottom and top adding one-eighth will help the appearance of the finished section, and make the weight, when filled, a plump pound. I notice the bees this year draw the combs beyond the wood at the bottom of last year's sections, so the glass presses on the honey. I have taken off three supers of Danzy sections so far, and the lightest weighed 14½ oz.: heaviest, 16¼ oz.; but the majority weigh plump 15 oz. I sell all I can produce, at 20 cts. each; the 4½x1½ at 15 cts. If you look in the

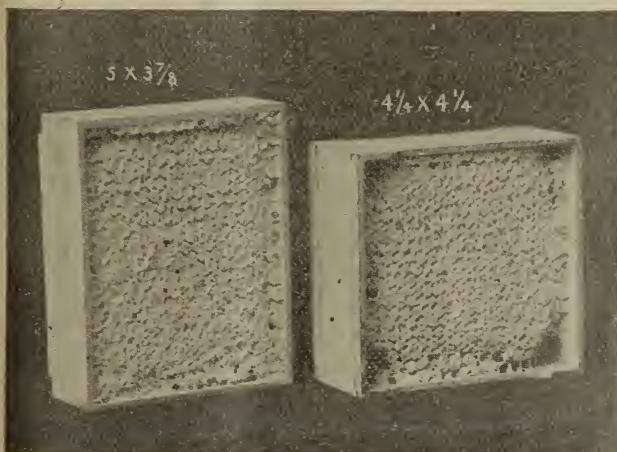
meaning what is arbitrarily styled the standard section.

I know little about bee-keeping. I am an amateur of two years' practice, commencing in May, 1895, with three colonies, and, buying one nucleus of Carniolans, have increased to 30 colonies at this date; but when I see the Danzenbaker section filled solid to the wood all round—sides, top, and bottom, while my 4½ sections have passageways through each lower corner, and even the whole bottom open, I feel a Christian regret for the experts, and rather hope to die an amateur.

By the way, I have always looked upon the tin strips on super bottoms, to hold the sections, as an abomination, and have found a way out. I drive carpet-staples $\frac{1}{4}$ inch into the end-bars of holders, and hang them in the rabbets, using a device like the "dividers" one of our friends writes about on one side, and $\frac{1}{4}$ -inch strips on the other. The bee-space all around seems a great comfort to the bees.

Mountain View, N. J., June 29.

[We have before had reports from those who have been using the 4x5 sections and the 4½. The former, in nearly every case, I think, sold for a higher price in the open market. Whether this difference was owing to this fact that the 4x5 looked larger by contrast than the square ones and therefore brought more money, or whether the oblong shape is really more desirable even when alone, is hard to say. If the 4x5 sells at a higher price because of the more pleasing contrast, then when the square sections are crowded out of the market I am of the opinion that the 4x5 would seek the same level in price as the 4½. In the cut both sections weigh the same. Which one looks the bigger?—ED.]



American Bee Journal, p. 378, under "Question-box," Prov. 11: 14, you will wonder how scripture texts can be twisted to suit the views of fossils. Captain Hetherington ordered 50,000 cartons for tall sections from one house in New York, and yet out of 22 experts only three in the aforesaid Question-box favor tall sections; and one of them, Rev. M. Mahin, says: "But I am not sure but that, if I used another style of hive, I should prefer 4½x4½x2," doubtless

HONEY AS FOOD.

ITS VALUE MUST BE MORE GENERALLY MADE KNOWN.

By F. A. Snell.

There is no doubt as to the great value of honey as food and the purest sweet known. Honey strengthens and invigorates the whole system, and acts as a regulator. Honey is easily digested and assimilated, and can be eaten by people suffering from some diseases where sugar would not be allowed by a well-read physician to a patient under his care, so afflicted. For throat, lung, or bronchial trouble it is highly beneficial, and has prolonged the life of many so suffering who have used it. In case of sore throat I have found half a teaspoonful of honey, taken at intervals of fifteen or twenty minutes, very soothing.

Its healing properties are great. Honey for ages was the only sweet used; and its usefulness was well realized. At present its use has been too much superseded by that of sugar and the vile glucose syrups sold at the groceries, and bought by people who think it cheap, when in fact it is dear if health is at all considered. The people must be educated, and bee-keepers have this work to do if it is done; and it must be, as with our increase in production we as apiarists will see lower prices than we have yet, and we all know now, counting the seasons as they come, that it is hard work to make ends meet at the end of the year.

In looking back over past years I can not but think of former prices and those prevailing at present. Comb honey I readily sold at 25 cents per pound in 25-pound boxes; later, in two-pound sections, 20 cents. These prices were for 100 lbs. or over. Our first extracted honey sold at wholesale at 20, 18, and 15 cts. per lb.; and later it has been going lower and lower. Now, what can we do to help ourselves? I think we must all work to increase the consumption of our honey, and unite as one man in a noble effort to stop the infamous adulteration of it, and all enemies who rob us of our legitimate and deserved rights should be thoroughly dealt with.

I have been among bees since I can first remember, and personally engaged in the bee business 39 years, and I have not in the past known of a time when energy, push, and united effort were so much needed as now—energy in educating the people; push, to sell our honey for the best price possible under present conditions; united effort in bringing adulterators and thieving commission firms to justice. In fact, our whole business of the disposal of our honey in distant markets needs systematizing—not in one section, but over the whole country. More money has been lost by bee-keepers through commission frauds during the past year than ever before. Bee-keepers, many of them, have shown lack of judgment in shipping to unknown parties, or those condemned by some of our bee-journals. I too have been caught by a few of them, and lost over \$150, but not for the few years just past.

There is no lack of work for us to do, and we should act for our just rights and best interests as a band of brothers.

Milledgeville, Ill.

[The way to educate the masses as to the value of honey as a food and medicine is to supply your customers with honey-leaflets. They should be distributed freely, and along with them should be a circular or card, to the effect that you or some local grocer has the honey for sale. And, by the way, I would see that the grocers are all supplied with honey-leaflets to distribute to their customers. Instruct them to wrap a leaflet in every package of honey that they put up; and if they read the leaflet, in all probability they will want to buy more.—ED.]

THE HOUSE APIARY.

ANOTHER HOUSE-APIARY ON THE PLAN OF THAT USED BY F. A. SALISBURY.

By Dr. J. Q. Mulford.

After reading friend Salisbury's article, page 662, 1895, I immediately contracted the house-apiary fever; but the bees had done so poorly for the two previous seasons that I did not feel like adding on the extra expense. In riding by the Shakers, a sect that live some two miles west, I noticed an old bee-house in which I had done some work in transferring some two years before, and I remember of thinking at the time how foolish in them to keep bees in a house. I was over the fence in a jiffy, and the first thing that attracted my attention was the entrance of those old box hives painted different colors, *a la* Salisbury. Instantly the thought came, "If I had been observant when I was working there, instead of feeling in a ridiculing mood, I might have been the first to tell the bee-keeping fraternity that bees *do* distinguish color."

I at once made some inquiry concerning the bee-keeper, but was informed that some ten years had elapsed since he had been heard of; but the house had been built 20 years before on the same plan as friend Salisbury's, excepting it is not quite so high, and is only 8 feet wide and 30 feet long. I hope no one will accuse me of trying to rob friend S. of the priority of making the house-apiary a success. I am only anxious to show that there is nothing new in the plan.

I hunted up the old doctor who had charge of affairs; and as he wanted strawberry-plants as much as I needed the bee-house, we soon made a trade. I put the house on trucks, and moved it home. The first question that troubled me was, which way to set it—east and west or north and south. After puzzling over the question for some time I decided on northwest and southeast. The next question that troubled me was, how to get the bees into the house. I left them on their summer stands until they had been confined there some three weeks by a cold spell, then moved them in. I am sure quite a number were lost during the first flight; but after that they seemed to get their hives all right. I am highly pleased with the house, and find the feeding-arrangement one of the handiest I have ever seen.

For spring I like best to take the can of syrup and walk along and pour the grooves full. You will be surprised at the amount those grooves will hold.

I am quite sure that a ventilated bottom is as great an invention as the feeder. I did not get all the new bottoms on when I moved the bees in; and during one of our very warm days I noticed the bees of one colony were hanging around the front of the hive, and were fanning

as though they were rather uncomfortable. The next morning I put a ventilated bottom under them, and they have been comfortable ever since. Friend S. writes me that he leaves the same bottoms on during summer and winter.

Now I suppose every one who has bees thinks he must have a house for them; and as there has been so much said in its praise he thinks there is no chance of there being any objections; but I find there is one, and a very serious one too.

Often, in the early spring, the sun shines brightly in the morning, and gives promise of being a beautiful day. The bees sally forth. Some return heavy laden, miss the entrance, and drop to the ground. Those on the east side soon rest, and, taking wing, enter the hive; those on the west side at once become chilled, and, if the day should happen to turn cloudy, they are lost. Those on the east, after 4 P. M. encounter the same difficulty; and if they are not helped into the hives they will surely perish. I have picked up a pint of these bees at a time, and poured them into the first hive I came to, hoping in that way to save them.

A house running east and west would be very objectionable on account of the sun never reaching the north side. The best plan would be a house facing southwest, and bees all on one side.

I am highly pleased with my house, and would not go back to the old way of having them scattered all over the yard, under any consideration. While working with them this morning a shower came up; but I continued the work just as well as if it had not been raining. How often, under just such circumstances, do I remember of hastily scrambling my tools together in order to seek shelter!

As to wintering, I am sure the house will be ahead of leaving out of doors. I lost 10 colonies out of 60; but that was due to my starving them by feeding them candy made after the instructions given in the A B C and GLEANINGS. I have succeeded in studying out a plan that is a success, and will report at some future time.

I am using the poultry-wire staples for end-spacers on my frames, and think very well of them at present. I get them at the hardware store for 10 cts. per lb.

Lebanon, Ohio.

[However near the house-apriary you now have (and which was built twenty years ago) may be like the one now used by friend Salisbury, I am sure he was entirely original in the planning of the general design of the one which he has. It only goes to show that the old Shaker and Mr. Salisbury, realizing some of the defects of the former house-apriaries, set about to remedy them by making one that would not have these faults; and that their minds ran in the same channel is nothing very significant, as many another pair of great minds have done the same thing.]

In view of the fact that our bees at the basswood apriary have been tampered with by

thieves, and in view of the further fact that we have no building in which to store tools, we expect this fall to put up a modern house-apriary, *a la* Salisbury, at the basswood yard. The structure will be strongly built, and have a good bar and padlock to secure the door or doors. When I visit Mr. Salisbury this summer I expect to take special note of his house-apriary; and if he knows of any faults, we shall, of course, remedy them, so far as possible, in our new structure.—Ed.]



DRONE COMB.

Question.—Can you tell me why my bees build so much drone comb? In hiving my swarms I give them one or two combs already built to help them start in their new home, and I find, on opening the hives a few days afterward, that from one-half to two-thirds of the comb they build is of the drone size of cells. Can you tell me how I can prevent this?

Answer.—Yes, it is easily told. Put in full frames of nice worker comb, filling the hive full; or fill every frame set in any hive full of foundation. See how easy it is! But I am reminded that you may not want to use foundation, or have not the full worker combs on hand, so I will give a few words on comb-building, in which you may possibly find a solution to your difficulty.

All observing apiarists know that, as the day of swarming draws near, the queen ceases her prolificness, so as to be able to fly and go with the swarm, so that, when the swarming does occur, the old mother-queen is scarcely larger than a virgin queen. Nature has so ordained things for two reasons, the first of which is that the queen may fly; for if a queen is taken from a colony when she is most prolific in eggs she can not fly at all, as she is so heavy with eggs. The second reason is, that the queen need not be inconvenienced with an over-accumulation of eggs before there is time for the bees to construct comb in the new home for her to deposit her eggs in; and so we find that all good queens do not become fully prolific again until about a week has elapsed after the new colony has arrived at its new location.

During this week comb has been built very rapidly, especially if honey is coming in plentifully from the fields, while the queen has not been able to keep up with the workers; the result of which is that the bees commence to build store comb, which is always of the drone size of cells. This comb is mainly filled with honey the first season (although in many cases some drone brood is found if the bees feel disposed to think of swarming again, or feel disposed to supersede their queen, or the honey-

flow slackens somewhat), the main trouble coming by having this store comb filled with drone brood after the bees have consumed the honey from these combs the next spring. Why I said good laying queens, is because some seem to think that no drone comb is built under any circumstances with newly hived swarms, unless the queen is old or beginning to fail.

Now, if we give a frame of comb or two to a newly hived prime swarm, as our questioner did, we make matters doubly worse, in that we furnish a place for the queen to deposit nearly all the eggs she would naturally lay during the first week after hiving, consequently nearly or all the comb built by the bees during this time will be for store comb, or of the drone size of cell, as the queen had furnished for her all the room in which to lay that she needs.

In the above we have the reason why bees build drone comb for the majority of bee-keepers.

Now, how is such a state of affairs to be avoided? The way I manage is to give the colonies which are to build comb a brood-chamber of only about half the size of the one from which the swarm came, this smaller size being made by contracting the chamber of the new hive to the size I wish, by means of dummies or division-boards, and also giving them a part of the section or surplus room at the time of hiving them. Where a queen-excluder is used, some of the sections should have in them partly built combs left over from the previous season, and the others supplied with thin comb foundation. Unless a queen-excluder is used, where no comb or foundation is used in the brood-chamber, the queen may go up and deposit eggs in the drawn comb which is in the sections. Preparing the hive in this way gives the bees plenty of room above to store honey, thus not crowding them in the brood-chamber, so that only comb of the worker size is built below, and that only as fast as the prolificness of the queen demands it. As her ability to lay increases, more comb is built; so that, at the end of the season, we have the hive filled with nice worker comb and plenty of section honey.

By the above plan three important items are secured—lots of section honey, no drone comb, and a hive full of nice straight worker comb; and as these latter will, with careful usage, last nearly a lifetime, it well pays to spend a little time on them while they are being built. I hope those who are troubled with too much drone comb in the body of the hive, and those who do not wish to fill their frames with foundation, will try this plan, on a few colonies at least; for if it works as well with others as it does with me it will be quite a saving to them, both in vexation and in not raising a host of useless drones to eat up the honey which the industrious little workers gather. Of course,

all of the above is applicable to only those swarms which have laying queens with them, and does not apply at all to after-swarms or those having virgin queens. With colonies having virgin queens there seems to be no disposition to build drone comb, unless the swarm should be so large that comb is built two or three combs away from where there is any brood, in which case a little drone comb may be built. Nor is there much drone comb built in the old colony after their young queen gets to laying, because, when an old colony gets such a queen, instinct teaches them that they may expect this queen to meet all requirements of a mother-bee for the rest of the season; while drones are necessary only when a change of mothers is contemplated by the bees. Hence no eggs are deposited in drone comb, even where such is already built in the hive, and much less is comb built for this purpose. Taking advantage of this fact I often manage to get one or two nice perfect worker combs built for future use, while the bees of these colonies are at work vigorously in the sections, by taking one or two full combs of honey from the outside (storing it away for feeding-purposes should any colony lack in the fall or spring), and inserting empty frames in the center of the brood-nest of colonies which have cast a swarm, and now have a young laying queen. These frames are filled, apparently, without the cost of any section honey, while it seems to give great energy to the colony so building comb. I also place on these last-named colonies having young queens, all sections (if I have such) containing drone comb, where they are filled without danger of drone brood in them, while much drone brood in sections often confronts the apiarist if such sections are used over prime swarms where no queen-excluders are used. Before I used this plan, and previously to the advent of thin worker foundation and queen-excluders, I was often vexed upon finding the sections placed upon prime swarms, nearly half filled with drone brood. It is unnecessary to say that thin worker or section foundation, and the queen-excluders, do away with all trouble of brood in the sections.



THE DEATH OF VOGEL.

One of Germany's most noted bee-keepers has passed away of late; and since GLEANINGS has not yet mentioned it I take it upon myself to here speak of it.

The *Bienen Zeitung* of April 13 brought the sad news to its readers that its editor, F. W. Vogel, had gone to a better world, his death

having occurred April 12. In Vogel the German bee-keepers (and for that matter the bee-keepers of the world) have lost out of their ranks a man of rare ability. He has been trying with untiring zeal to disclose the mysteries hidden in the bee hive. It seems that, where many others could see nothing, he saw clearly. With the microscope he was simply a genius. In dissecting the most minute insects and their organs he was a master with perhaps few equals. How often have I been astonished and surprised at his accomplishments along this line!

During his life's career honors have been bestowed upon him by crowned heads of Europe, they having repeatedly taken notice of him, decorated him, etc.

He was honorary member of quite a number of bee-keepers' associations and other societies for the promotion of science of his own and foreign countries.

For years he has been the leading spirit in the annual *Wanderversammlung* of Germany's and Austria's bee-keepers. The success of these meetings must be largely attributed to him, to his qualifications as a manager, his fitness in general. No discord ever entered into these meetings.

In the May issue of the *Bienen Zeitung* Dr. Dzierzon and Bergfeld sing the praises of Vogel, give expression to their sorrow, and with that they express what all the bee-keepers of Germany feel.

It seems as though I had lost a long-loved friend. Vogel will always be remembered.

Naples, N. Y., June 10. F. GREINER.

THE ROBBER-FLY.

Editor Gleanings:—I have the following letter from C. R. Decker, Tipton, Cal.:

Prof. A. J. Cook:—Inclosed you will find a bug which I saw catch and kill a bee. Will you please give through *GLEANINGS* the name and habits of this insect?

This insect is not a bug, but a two-winged fly, one of the large robber-flies that are well known as bee-killers throughout the whole country. It is one of the robber-flies, or *Asilidae*. These flies are either long, black insects, with tapering bodies, or else yellow, hairy insects, much resembling bumble-bees. They have a strong beak, and are very ferocious. I have known one to attack a fierce tiger-beetle, subdue it, and carry it off. They are very common in California. I consider these robber-flies as very valuable. They are among the best of our predaceous insects, and without doubt destroy a great many of our insect-enemies. I doubt if in many localities they destroy enough bees to do any very serious mischief, while it would be hard to overestimate the amount of good which they accomplish.

CALIFORNIA KINGBIRD.

A few days ago a kingbird was shot at Clare-

mont, which had a number of bees in its stomach. I did not see the bird, but my authority is such that I have no doubt of the fact. I should have been very glad indeed to make an examination, as I should like to determine as to the sting of the bees swallowed—whether the bird destroyed the stings before it swallowed them, or whether the sting was lodged in the bird's throat, or whether it was still in the bee after it entered the stomach. The same party killed a kingbird a few days after, and brought it to me, when I carefully dissected its stomach. I found in the gullet, not yet down to the stomach, a large robber-fly. Thus, if the kingbird does kill the bees it also preys in part upon one of the bee's worst enemies, the robber-fly. The other insects in the stomach of this king-bird (and they were a large number) were all injurious species. I think, then, that we may say of the kingbird as of the robber-flies, that, while they do take some bees, they do far more good than harm. It is often said that the kingbird feeds only on drone bees, and does not take the workers. This is certainly not true. They do sometimes capture and feed upon worker bees.

A. J. COOK.

Claremont, Cal., June 3.

[In large queen-rearing apiaries it is sometimes necessary to shoot the kingbirds. I remember one season we lost a good many young queens. We also noted that the kingbirds were quite numerous about the apiary. We shot them off, and there was less trouble. I do believe, however, that any bird that feeds upon insects (unless it be sparrows) usually does more good than harm, and their lives should generally be spared.—ED.]

HONEY FROM POISONOUS SOURCES.

On page 376 you can't imagine why W. C. Myer wants his bees to work on poison oak. If it is the same as poison sumac, and I think it is, I don't think it will harm bees or man to use the honey, as there is plenty of it in the swamps here, and I never heard of any ill effects from it. Poison ivy is an excellent honey-plant here, and bees just swarm on it when in bloom. The honey goes in with clover, and you would never know it was there.

My 96 colonies all wintered out of doors. One was queenless, but I gave it a cell and saved it. Only 4 weak in the lot. I never had my bees in as good shape at this time of year. Bees began to swarm the 10th—earlier than ever before since I kept bees. I have, from 76 hives, extracted 880 lbs. of honey up to date; lots of fruit-bloom honey in hives now.

E. D. HOWELL.

New Hampton, N. Y., May 15.

[Prof. A. J. Cook holds that honey from poisonous plants is not poisonous. Perhaps the honey from poisonous sources, when mixed with the other honey, bears so small a proportion that it is only a "drop in the bucket." Some of the most deadly poisons, when diluted much, are perfectly harmless.—ED.]

THE ACTUAL RELATIVE PRICES OF BEESWAX
AND HONEY IN MEXICO AND THE
UNITED STATES.

There appears in the *American Bee Journal* of April 29 an advertisement for the sale of a home in Mexico. Elsewhere a statement is made to the effect that wax sells at 50 cts. per pound, and extracted honey at 10 to 12 cts., and from fruit alone on this place he should realize \$250 to \$300 this year. Now, don't let any one be misled by such statements, as you well know Mexico deals in depreciated money, and one dollar of our money will buy two of theirs; consequently 50 cents for wax is not as good as 25 cents is in the U. S.; 10 and 12 cents for extracted honey is not as good as 5 and 6 cents in America, because flour, one of the staples, is worth more than double in Mexico what it is in this country; besides, there is no society to speak of but Mexicans, and I know whereof I speak. To any that may be looking for a home in the beautiful land of sunshine, there is lots of room in Southern California, and the finest honey-producing section in the world. I have 55 colonies of bees, and up to this date have extracted two tons of the finest water-white honey I ever saw, and shall, without doubt, take two or three tons more before the flow ceases, which will be about the middle of July, if nothing happens to prevent it. Please bear in mind I had, spring count, only 20 colonies, and bought 12; the rest is increase. M. H. DUNN.

Fullerton, Cal., May 30.

IS COMB HONEY REALLY BETTER THAN EXTRACTED?

Dr. C. C. Miller:—I wish you would write up the reality of a fondness of some people for eating comb honey. It is nice on the table, and looks very tempting. I like comb honey, but get tired of it, and catch myself extracting the honey from the wax, eating the syrup, and leaving the wax on the side of my plate, and I see others at the same game.

Now, what is the reality in this? Do I like it better in the comb, or is it a notion, which seems to be proven by the wax by my plate?

Dadant says, page 430. Langstroth Revised, that people go to a great expense in raising comb honey to enable the owner to eat his honey with the wax, when, as every one well knows, wax is tasteless and indigestible. It sells for more than extracted honey, but that may be owing to scarcity or demand. How is it when they claim to like comb honey better than extracted, and deny they like the wax?

Newell, N. C. JOSIAH W. HUNTER.

[Dr. Miller replies:]

I think I don't need to do much writing up after what Mr. Hunter has said. I think it is true that a good deal is foolishly said about the delicious flavor of beeswax pure from the bees without any intervention of man. A few days

ago I took a piece of freshly built comb, pure and white (it was drone comb that I had broken out), and no amount of chewing could extract from it the delicious flavor talked about. A pine stick has a good deal more flavor, and perhaps of just as good quality. I think the mistake has been made in some cases by comparing comb honey with extracted. It is probably true that the average sample of comb honey is of better quality than the average sample of extracted—not because the honey in one case is intrinsically better than in the other, but because so much honey is extracted before it is fit. Usually the best honey can be found in the comb; but it isn't the comb that gives the flavor, and I suppose the best sample of comb honey ever produced would be improved for the purpose of taste by having the wax removed.

C. C. MILLER.

[In addition to what the doctor has said, and which I indorse, the general public, to a great extent, are suspicious of extracted. No matter how pure and good it is, they are apt to think it is adulterated; but honey in the comb they have confidence in. If we *think* a thing is better it tastes better, no matter whether it really is or not. Mr. Hutchinson has suggested that it is the crushing of the comb with its delicious sweetness that tickles the palate.—ED.]

THE NEW DRAWN FOUNDATION—A BOON TO BEE-KEEPERS.

The samples of deep-cell foundation came to hand in good shape. You must understand the mail-bag is thrown from an express train going at the rate of 50 miles an hour by our way station. I expected to see it crushed. I consider it a good test of strength.

Having read the criticisms I was desirous of comparing it with natural drawn comb. I have before me several sections from last season, full sheets and starters, drawn from $\frac{1}{4}$ to $\frac{1}{2}$ inch deep; and even where the bees have built natural comb containing the starters two-thirds down, your deep cell excels it in transparency and whiteness. I am satisfied that, if you can make this new improvement a commercial success, it will be a boon to bee-keepers. Please send me samples of deep cell, $\frac{1}{2}$ in., as I propose to make an experiment, alternating each kind with starters and full sheets in one super.

Bees are in fine shape—brood-frames full of brood and honey, and supers on.

B. F. ONDERDONK.

Mountain View, N. J., May 7.

[We should be glad to have you give us the results of your experience later on.—ED.]

YELLOW-JESSAMINE HONEY; HAVING EYES BUT SEEING NOT.

Please tell Mr. Ernest that I am now here to sift that yellow-jessamine story, as I am one of those who do not believe in poisoned honey. People will drink water after eating honey, and

so there happen a great many cases of fermentation in the stomach, called poisoning, to make out a case for some physician. And I believe that your grand botanists may be up to all known classifications of northern flora; but when it comes to the tropical flora and its immense varieties, they are completely at sea, and the reason is obvious. They can not examine and study them in the summer, their right season, but go to the tropics when every thing is dried up and there is nothing to see. Not long ago one of your taxidermists went to our section after birds, in the dry season, and was heard to say that Cuba was very poor in birds. The birds were then in the virgin woods, where they could get something to eat, and he could not find them. The same with many that "have eyes and see not."

Tampa, Fla., June 11.

C. CADALSO.

THE FOUL BROOD LAW IN MICHIGAN.

[Some little time ago I wrote to the Hon. Geo. E. Hilton, of Fremont, Mich., for a copy of the foul-brood law of that State. The following is his reply, together with a copy of the law in question:]

My dear Ernest:—Replies to yours of the 19th, I went through my "Public Acts" as far back as I have them, and then went to my attorney's office, and found an act that was introduced by Dr. Wm. W. Root during the session of 1881. I have had it copied, and you will find it inclosed. I consider it a splendid measure, but I don't believe there is one bee-keeper in a hundred in the State of Michigan who knows there is such a law upon our statute-books. It has never been amended or repealed, and is to-day in full force, and I would suggest the printing of the bill in GLEANINGS, for the benefit of the bee-keepers of America. GEO. E. HILTON.

Fremont, Mich.

CHAPTER LXII.

PREVENTION OF FOUL BROOD AMONG BEES.

1881, p. 125, May 11, Act 141.

SECTION 1.—The people of the State of Michigan enact: That it shall be unlawful for any person to keep in his apiary any colony of bees affected with the contagious malady known as foul brood; and it shall be the duty of every bee keeper, as soon as he becomes aware of the existence of said disease among his bees, to forthwith destroy, or cause to be destroyed by burning or interment all colonies thus affected.

SEC. 2. In any county in this State in which foul brood exists, or in which there are good reasons to believe it exists, it shall be lawful for any five or more actual bee-keepers of said county to set forth such fact, belief, or apprehension in a petition addressed to the judge of probate, requiring him to appoint a competent commissioner to prevent the spread of said disease, and to eradicate the same; which petition shall be filed with and become a part of the records of the court where such application is made.

SEC. 3. It shall be the duty of the judge of probate, on the receipt of the petition specified in section two of this act, to appoint a person to do thereafter the like kind and competent bee-keeper of said county as a commissioner, who shall hold his office during the pleasure of said court; and a record of such order of appointment, and revocation, when revoked, shall be filed as a part of the records of said court.

SEC. 4. It shall be the duty of said commissioner, within ten days after his appointment as aforesaid, to file his acceptance of the same with the court from which he received his appointment.

SEC. 5. Upon complaint of any three bee-keepers of said county in writing and on oath, to said commissioner, setting forth that said disease exists, or that they have reason to believe that it exists in the county so designated, the apiary or aparies wherein they believe it to be, it shall become the duty of the commissioner, to whom such complaint is delivered, to proceed, without unnecessary delay, to examine the bees so designated; and if he shall become satisfied that any colony or colonies of said bees are diseased with foul brood, he shall, without further disturbance to said bees, fix some distinguishing mark upon each hive wherein exists said foul brood, and immediately notify the person to whom said bees belong, personally or by leaving a written notice at his place of residence, if he be a resident of such county; and if such owner be a non-resident of such county, then by leaving the same with the person in charge of such bees, requiring said person, within five days, Saturday excepted, from the date of said notice, to effectually remove said hives, together with their entire contents, by burying them or by fire; but in case no foul brood is found to exist in said apiary, the persons so petitioning, or any of them, shall be liable to said commissioner for the amount of his fees for such services.

SEC. 6. If any person neglects to destroy or cause to be destroyed said hives and their contents, in manner as described in section 3, after the notification, and after the time above limited, he shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not to exceed twenty-five dollars, or by imprisonment in the county jail not more than fifteen days, or both, in the discretion of the court, for the first offense; and for each additional offense he shall be liable to a fine not to exceed one hundred dollars, or imprisonment in the county jail not more than sixty days, or both in the discretion of the court; and any justice of the peace of the township where said bees exist shall have jurisdiction thereof.

SEC. 7. The commissioner shall be allowed for services, under this act, two dollars for each full day actually employed and one dollar for each half-day actually employed, to account to be audited by the board of supervisors, paid in the same manner as all other county claims; but no fees shall be allowed by the board of supervisors to such commissioner for any services under this act unless foul brood is found to exist.

SEC. 8. In all suits and prosecutions under this act it shall be necessary to prove that said bees were actually diseased or infected with foul brood.

[There is already an excellent law in Wisconsin, and I hope later on to give a text of it in GLEANINGS. We shall be very glad to furnish copies of our journal, containing these excellent measures, to bee-keepers residing in States with no such law, and who wish to distribute them to members of their general assemblies.—ED.]

FOUNDATION WITHOUT PAPER.

The foundation without papers came to hand all O. K., and is much less trouble than when papered. We prefer it in the strips. Honey is coming in nicely, and of fine quality.

N. E. DOANE.

Breckenridge, Mich., June 24.

[Mr. Doane has purchased several lots of foundation this season without paper. In all northern shipments the paper could be dispensed with to advantage to us and our customers, I believe; but we do not as yet dare to risk the experiment until we can hear from more like the above. For southern shipments it doubtless would be wise not to think of giving up the papering.—ED.]

WHEN TO REPLACE OLD DARK COMBS.

I have some stands of bees, and the brood-comb is getting black and hard. Will you please tell me when is the best time of the year to remove some of the old comb and put in foundation? How many sheets should I remove at one time?

R. A. WEDDINGTON.

Moulton, Tex., May 22.

[The best time to remove old black combs, or those that are in any way defective, is when there is the least honey in them. Usually that will be in the spring of the year, about fruit-bloom, or shortly after. Along in the fall also, when you are contracting your colonies to as few frames as they can occupy, you can remove the outside frames that are empty, and set them to one side. From this lot you can select the combs that are defective or dark, and replace them in the spring or summer with frames of foundation.—ED.]

Friend Aikin's articles in the two last issues of GLEANINGS, in regard to putting up extracted honey in tin cans, are sound, and speak my ideas exactly. Something must be done along this line in disposing of extracted honey. You speak of placing 4½-lb. cans at your branch offices for sale. By all means place the size of 1, 2, and 3 lb. cans in your list as well.

Plattsmouth, Neb.

J. M. YOUNG.

REARING QUEENS ON THE JONES SYSTEM.

You ask in GLEANINGS for reports on how the Jones system of rearing queens works. I would say that I have some fine queens with less work than when I had to dip the cells on sticks, *a la Doolittle*. CHAS. STEWART.

Sammonsville, N. Y.

Our stores in this part of the State are being flooded with goldenrod honey put up in glass tumblers retailing at 10 cts. each. I send a sample by mail. If this honey is pure, no harm is done.

H. W. McCOMBS.

Richmond, Iowa.

[The sample in question was undoubtedly adulterated with glucose.—ED.]

Can you tell me where or how I can get a queen or nucleus of the giant bee of India? If so, what will be the probable cost?

It is disgusting to read the different articles in some bee-journals against the new deep-cell foundation and the giant bee, when the writers have never seen or tried either, and, one might say, know nothing of either. It is surprising to learn the number of narrow-minded, jealous writers we have to put up with. I shall be glad when we can get the deep-cell foundation. I believe it will be invaluable. I am using the new Weed process foundation. It is the finest I have ever used or seen.

J. W. GREGG.

Gazell, Cal., May 24.

[There is no place yet in this country, and may never be, where queens of this race may be obtained. See Straws, this issue.—ED.]

SELLING HONEY IN A UNIFORM PACKAGE; BRO. AIKIN'S IDEA INDORSED.

On page 407 Bro. Aikin has opened up a good idea. I tried to get the Columbus Storage and Commission Co. to do this very thing last fall—to put extracted honey in cheap packages so I could sell to the groceries or to the consumer direct through the market; and now if I can get honey that I can guarantee to be pure, and labeled as it should be, I can sell thousands of pounds, as I have a good trade on comb in Columbus and at home, and I can do the same on extracted; but on account of there being so much on the market that is adulterated it would take some little time to convince the people that I was selling a pure article; but when this is done my trade will be enormous; and if there is a company formed to engage in this business I will give up my business and give all my time to the honey trade in Columbus and near-by towns; so I hope this matter will be pushed to the front. In this way I could get the producer a better price for his honey, both comb and extracted, than they can possibly get through commission houses. The way honey is now sold here, there are at least three commissions paid; while if I sold to the consumer there would be only one.

Blacklick, O.

D. M. RITCHIE.



Bees are still booming. We shall have lots of honey.

DAVID GROSSMAN.

Terrell, Texas, June 29.

We are having the heaviest flow of white-clover honey I ever saw.

C. C. EDDY.

Reinersville, Ohio, June 25.

At present we have the *first great honey-flow* from white clover for many years. My bees are just rolling in the honey.

M. N. SIMON.

Bloomdale, O., June 25.

Sweet clover beginning to bloom. I took 48 lbs. of comb honey to-day from one six-frame hive; others as good; will take off my first crop to-day and to-morrow.

D. M. RITCHIE.

Blacklick, O., June 24.

We are having the heaviest honey-flow I have experienced in the 17 years that I have kept bees. Swarms that were hived the first week in June have finished 56 sections besides the brood-chamber, and are swarming again.

England, Pa., June 30. S. B. POST.

Wanted at once, 100,000 overcoats for bees so that they can gather a little of the thousands of pounds of honey hanging in the clover-blossoms.

L. B. THATCHER.

Somerville, N. J., June 15.

[When the foregoing was written it was doubtless cold; but to-day, July 3, it is 98° F. in the shade. Those overcoats will not be needed now.—ED.]

THE GREAT WHITE-CLOVER YEAR.

If this is not the good old white-clover year again, what is it? This year will always be known as the great white-clover year. Here it is June 15, and I have 50 hives with 60 sections on each hive, two-thirds of which are sealed. The ground looks as if it were covered with snow, the clover bloom is so heavy; and lots of swarming too, but not with the L. hive. I have not had a swarm from one of these hives; but the bees in American hives are swarming badly.

Fremont, O. CHAUNCEY REYNOLDS.

A BANNER HONEY YEAR.

This has been one of the best seasons that Parke County bee-keepers have seen in several years. White clover has been very abundant, and yielded an unusual amount of honey. Other honey-plants have yielded in proportion to clover. At this date basswood has just commenced to bloom. Taking all together, the year 1897 will long be remembered as a banner honey year.

Rockville, Ind., July 3. W. P. OVERMAN.



J. M. C., La.—It is quite a common practice to place two swarms together in the same hive. As a general rule, only one queen is killed.

D. E. B., N. Y.—You can put other bees on the combs coming from hives on which bees died the previous winter. The fact that the said combs contained candied honey will do no harm—at least for spring or summer use.

G. W. S., Wis.—The question as to whether bees are taxable property or not is one that can not be answered by yes or no. It all depends on the law of your State in reference to the matter. If you consult some attorney he will probably be able to tell you.

D. B. H., Wash.—It does little if any good to put any thing on a bee-sting, for the reason that the applied remedy can not reach the depth of the wound. It is usually best to leave it entirely alone. The more it is tinkered with, the worse it will become.

M. E. H., Mich.—The fact that you find the bees fighting at the entrance, with dead bees in front of it, is pretty good evidence that there has been robbing in that hive. Possibly the entrance is too large for the size of the colony, and should be contracted.

J. B. W., Tex.—The dandruff-like particles that you found in front of the entrance are probably the scrapings from the combs, or small pieces of cappings taken off when the honey is uncapped. When the bees have no use for this surplus wax they will carry it out at the entrance.

H. E. M., Ind.—Referring to your inquiry regarding the swarm of bees that came out and went back, and did the same thing next day, we would state that, in all probability, the queen was not able to follow. If her wing was defective when the swarm issued she would crawl out at the entrance, and, failing to fly, would crawl back into the hive, followed soon after by the bees.

P. D. S., Pa.—Swarms will very often come out the second and third time as you have described. You can usually make them stay the first time by giving them a frame of unsealed larvae from some other hive. Then in hiving swarms it is always advisable to leave a very wide entrance, and leave the cover tilted just enough so as to give a strong circulation of air through the hive. When they get quieted down, then the cover may be closed over, and all will go well.

W. L. S., Va.—It is usually best to introduce queens just as soon as they are received in the mails. A queen may live in the cage one day

or ten days; but it is not safe to take any risk. It is not necessary to requeen a swarm unless, perhaps, the queen is an old one and should be replaced. Unless you desire to rear queens it is not necessary nor advisable to maintain drones in the hive. They should be kept out with the Alley trap, or, better, all drone comb should be cut out early in the season, and thus save the waste.

J. C., Va.—If your bees do not work to any extent in sections, inverting the hive would do little if any good. It is usual to put in what is known as a bait section—that is, a section with comb partially drawn out from last season. The bees will usually enter and store honey in this, and from this branch out to other sections; but unless the brood-nest is pretty well crammed with honey, bees will not enter the supers. Until the lower part of the hive is filled you can not get them to go above, and not in any event unless honey is coming in at a good rate.

J. S. E., W. Va.—It is proper to give the bees more room, but not toward the latter end of the season, when it is evident that clover bloom and basswood are drawing to a close. You can also place a crate of partly filled sections from one hive on to another. This is often done by practical bee-keepers—that is, the crate is given to a colony that is stronger, and more likely to finish out the season. For particulars in regard to the matter, see "How to Produce Comb Honey," in the catalog we are mailing you, p. 33. You can divide a colony in July, as you state, and, by paying attention to feeding, get them both in fine condition for winter. Better be careful about increasing too fast. Bees will increase fast enough, usually, during the swarming season. The eight-frame hive seems to have the preference now, and it may be made to take a large colony by using two brood-chambers.

E. C., N. H.—Regarding the queen and drone trap, which you have doubtless received, we would state that, by the directions on the end of the trap, you will see that a queen can be caught in the upper compartment, the trap detached, and placed among the flying bees of the swarm now in the air. We have sometimes attached the trap to a common garden-rake, and held it in midair until the bees had clustered upon it. Or a better way is to detach the trap from the parent hive and put another hive in its place, with dry combs or frames of foundation. Put the trap on this hive and the swarm will return. As soon as the bees are in the hive, let the queen run in at the entrance. If there was a super on the parent hive, put that on the new hive, and then the new swarm is ready for business. The old hive may be removed to another location. For fuller particulars on this question see our A B C of Bee Culture.



WE are still running night and day, but expect to be pretty well caught up by the 17th. The demand for shipping cases and sections is simply phenomenal.

UNDER Convention Notices will be found a letter from Dr. A. B. Mason, Secretary of the United States Bee-keepers' Union. He requests me to state that the information he gave on page 457, June 15, so far as it related to railroad rates, was not correct, and should be entirely disregarded; and he further says that what appears in Convention Notices is all right, and correct. Our readers will please take notice.

HOW TO DRAW A CROWD TO SELL HONEY.

IN our previous issue I promised to tell how to draw a crowd around groceries and other places where honey is sold. The experiment to which I shall refer was tried in Detroit. A large tobacco-firm, who were using honey to sweeten their tobaccos, and who desired to advertise the fact, employed a bee-keeper to place an observatory hive just inside the show-window. On top of the hive was placed a row of nicely filled sections of honey. Of course, the hive was arranged so the bees could not fly out, and every few days the bees were given a rest, and another set of frames was put in their place. The experiment was a success in every way. Great crowds congregated about the window, and the tobacco-store was full of men who wanted to sample the new honey tobacco. The crowds became so great that the police had to request the tobacco firm to discontinue their novel mode of advertising. They practiced the same method in another part of the city with the same success, and were, sooner or later, asked by the police to take the bees out of the window, as it interfered with traffic.

While GLEANINGS is opposed, first, last, and all the time, to the use of tobacco in any form, it recognizes that here is a legitimate mode of advertising that may very often be employed profitably by *bee-keepers*. Prepare a hive having one glass side. In the hive is placed one comb of bees, the bees being shut off from the rest of the hive by a tight-fitting division-board. As only one side of a comb can appear at once, one comb is sufficient. Over the frame of bees are placed four nicely filled sections of honey to which also the bees have access. The whole is neatly encased in glass. The hive is shoved up close to the show-window, and over it a neat card: "These bees belong to John Jones. His honey is for sale here. Inquire within."

I said in our last issue, and elsewhere in this

number, that, in view of the enormous honey crop, bee-keepers should take every means possible to work up their home markets. Here is a scheme. Try it and report.

HOW SHALL WE KEEP UP PRICES ON HONEY?

REPORTS are piling in every day saying that there has been a most tremendous flow of honey from white clover, and in some cases there is still basswood to follow. In another column we publish a few of these encouraging reports. We have not room enough to put them all in, but we give place to just enough to show which way the wind blows. But this large crop of honey places before bee-keepers a difficult problem; namely, "How shall we keep up prices?" In relation to this I make an extract from a letter just received from Harry Lathrop, a prominent bee-keeper of Wisconsin.

I fear a glut in the honey market, and ruined prices. The whole of Southern Wisconsin is flooded with white clover, and well-finished sections are now on the market, and the white clover season not half gone. Basswood, promising a large crop, will soon be in bloom. What can we do to save our market? Farmers who do not make a specialty of kee-keeping will sell their little crop at ruinously low prices, and make the price for the bee-keeper who depends on his honey crop alone. Supplies and general cost of production are as high as ever. Sections from most factories cost more this year than last. If you could reach the people I refer to you could advise them not to sell their honey too low; but you can not reach many of them. No one in this country ever saw as much white clover in bloom at once as there is now. The year 1893 does not compare; still, there is too much rain for strictly first-class work in storing. Though I have colonies that have given two full supers of extracted, the quality seems to be excellent, regardless of the rainy weather.

H. LATHROP.

Brownstown, Wis., June 30.

It is true, that farmers who make no specialty of bee-keeping will sell their crop at ruinously low prices. I do not know of any way to do except to ascertain who have produced honey, and go around personally and ask them to agree not to sell lower than certain prices. This would not be a combine nor a pool, but simply an effort on the part of honest bee-keepers to protect themselves from ruinous prices. Such a move will enable the farmer to realize, at the same time, more for his honey. If there are only one or two and their crops are not large it might be well for you to buy them out.

In our last issue I cautioned bee-keepers against the policy of rushing their honey off to the city markets, and urged every one to sell around home as far as possible. When bee-keepers flood the great centers with honey it makes a glut on the market, and the published prices go into every little town and hamlet of the country; and, barring difference in freights, those city prices are almost sure to put all other markets on the same level.

A liberal use should be made of the honey-leaflets. When there is over-production, stimulate greater consumption. Bee-keepers everywhere should take honey-leaflets and distribute them around their locality and in their home markets. Let people know *why* honey is

a more wholesome sweet, especially if it comes direct from your own apiary, than ordinary syrups and so-called "strained honeys" that come from the cities.

The price of the leaflets is put away down so that you can afford to give them away. (See prices following the Honey Column.) The watchword, then, with bee-keepers everywhere should be, increased consumption of honey; for unless there is, prices will drop in obedience to the law of supply and demand. If there is a double supply, the thing to do is to *double the demand* if possible.

THE NEW DRAWN FOUNDATION; DOES IT MAKE
"GOBBY" COMB HONEY?

Of course, this new article has been the subject of continued and careful experiment at the Home of the Honey-bees. Supers having a row of drawn foundation, and then a row of full sheets of ordinary foundation placed in alternation, have been placed on the hives, both at the home and at the out-yard. We have also given the bees supers containing sections filled with drawn foundation only. Now, what has been the result of these experiments? Just the same as those conducted on a much smaller scale last year. In every case the bees have accepted the new drawn foundation at once. As was to be expected, where full sheets of the new article were put into sections, the combs were attached, when completed, to all four sides.

Earlier in the season, when orders were pressing for the new foundation, we put into a good many sections only narrow strips about $1\frac{1}{2}$ inches wide. These were placed in alternation with the old-style foundation of the same width. The new article was accepted at once, and comb-building begun at its bottom edge, and continued down to the bottom of the section, nearly. In very many instances such combs were nearly completed before the bees did much with the narrow starters of common foundation, which they had gnawed in many cases. In one or two instances, where the supers of full sheets of drawn foundation and full sheets of old foundation were placed in alternation over powerful colonies, the old product was not so far behind in the drawing out.*

"But," you may ask, "what kind of comb honey does the new drawn foundation make?" I suppose an ordinary fair test would be to compare it with comb honey made from full sheets of foundation. But Mr. Weed was determined to give it a more severe test still. Accordingly he brought in one of the sections completed that had been made from a narrow starter of drawn foundation. The lower portion, or that built by the bees, was, of course, natural drone comb. In my presence he requested two of the

printers to turn their backs while he cut a small chunk of comb honey from the natural-built comb, and one that had been completed over the drawn foundation, *both from the same sections*. Boss printer Hobart then took a mouthful of one, without knowing which one he took. He chewed it down to a piece of wax, and then took a mouthful of the other, and chewed that also. When asked to state whether one was more "gobby" than the other, he answered in the affirmative. On being asked which one it was, he named the second mouthful, which proved to be the natural-built drone-comb. To make sure that there was no mistake, another printer, Mr. Shane, was tried in the same way, only that the order of the mouthfuls was reversed, with the result in favor of the new product again. It seemed to me hardly possible that the Weed foundation would give *more pliable* comb honey with *less wax* than that built wholly by the bees, even though it were drone comb. Then the test was applied on me, with the result that I could see quite a marked difference in favor of the Weed. I asked Mr. Shane what he meant by saying that one was more "gobby" than the other. "Why," said he, "one is harder to chew."

Now, understand that this honey from the new Weed drawn foundation was put in to test over against *comb built wholly by the bees*, but which, as a matter of fact, was *drone* comb, and which they usually build for store purposes during the honey-flow.

It should be stated that natural-built drone is heavier than natural-built worker; but the bees don't build much worker comb for store purposes, as already stated. It will be seen that the fear that the comb honey from the new product be *more "gobby"* is groundless.

Later.—After the above was in type we tried again the same experiment that we did on the printers, with the exception that we placed comb honey from foundation in the test. The tasters were A. I. Root, my sister Constance, my mother, three of the machine-shop men who hardly know a bee from a grasshopper, and, last, the cook in our lunch-room. The verdict of all was that the natural-drawn comb was heavier and more gobby than either the drawn-foundation honey or that built from full sheets of ordinary foundation. As between the last two, the verdict was that there was no difference. Please understand that none of the tasters above mentioned had knowledge beforehand which sample was which. They were tested independently, with the result aforesaid.

To-day, July 12, I took home with me a section built wholly from a full sheet of Weed drawn foundation. I cut it out of the section myself. At the point where it was fastened to the wood, it seemed to resist the knife considerably; but beyond this the blade went through

*This was the experience of M. G. Chase; but powerful colonies are not always to be had.—E.P.

the comb without any sensation of midrib, as is present when the comb is built from full sheets of ordinary foundation. Upon eating the comb I could not see how anybody could think it was more gobby than ordinary comb honey. Strange as it may seem, our household do not ordinarily care very much for honey; but Mrs. Root remarked how nice and tender this comb was. The whole section had delicate comb, and they all pronounce it fine—even the youngest, who sits by "papa."

Now, I do not believe that I am prejudiced; and if any one thinks I am, I hope such person will try the experiment of blindfolding two disinterested persons, placing before them samples of comb honey. That will surely eliminate the element of prejudice which is so decidedly pronounced on the part of a few of those who have seen fit to oppose the new article. One man condemned the new drawn foundation severely, even before he had tried it. Now, after having tried it on a small scale (three samples from our first dies that were very inferior to our present ones), on the principle of "I told you so" he condemns it just as severely again, saying that bees would not accept it, and that it had an "awful gob" to it. His experience is so opposed to our own, in the case of dozens of samples I have seen, that I must believe his prejudice quite ran away with his judgment. A few condemned ordinary foundation when it was first introduced into this country. They condemned it beforehand, and then condemned after they had tried it, saying that the bees would not accept it, etc. It is not at all strange that one who has condemned severely the new drawn foundation should do so now, after having tried it.

It is hardly time yet for reports to come in from the general field, for, in fact, we have not solicited them, except in a general way; but here is one just received from Mr. F. A. Salisbury, and it speaks for itself:

Ernest R. Root—This afternoon I looked at the case of sections of drawn foundation that were placed on an average colony on the 8th inst., and find that all the sections were accepted by the bees, and drawn out still more by them, and filled partly with fresh honey. I took off one section and marked (in the hive 48 hours) to show bee-keepers. It looks nice. I shall take off another one on the 12th. I think you have a good thing if the price is not so high as to prohibit its use. I wish you would send me about 1 lb. more by express. I will test it alternately with foundation. This case was put on with all drawn comb. I did not think about alternating them when I placed them on.

F. A. SALISBURY.

Syracuse, N. Y., July 10, 1897.

Mr. Salisbury has been requested to place samples in alternation with ordinary foundation, and we shall await with interest the result of his further experiment. There are hundreds of others who have been testing the new article, and, of course, we shall be glad to hear from them too, whether their reports are good, bad, or indifferent. In the mean time I might add

that we have heard from Mr. Vernon Burt, who has been trying half a pound of the new foundation. He reports that it is a good thing; that it has only one fault; namely, *he can not get enough of it*.

Mr. John Iper, who has a few colonies out of town, has also been trying the new drawn foundation, with the result that he finds a decided preference on the part of the bees for the new article. Said he, "The bees begin to store honey in it immediately; and then after the comb of the drawn foundation is filled and well under way they begin on the starters, in the ordinary way." He has not yet tested the eating quality of the two kinds of comb honey.

Mr. M. G. Chase, owning some 125 colonies seven miles from here, at Whittlesey, has also been testing the new product. He placed in one super a row of sections of drawn comb of the previous season of full depth, a row of the Weed drawn foundation $\frac{1}{4}$ inch deep, with a piece at the top and a piece at the bottom of the sections; also a row of full sheets of common foundation. The full-depth comb was entered first of course, then next the drawn foundation. After the work was well begun in these then the bees drew out the common foundation. If the drawn comb had been leveled down to the same depth as the drawn foundation, the bees, he thought, would have taken one as quickly as the other.

To-day, July 13, he brought me up representative samples showing each of the three lots. Sections after being completed, containing either the drawn comb or the drawn foundation, weighed from one to two ounces more than sections that contained full sheets of common foundation. I have the samples in our office now, and shall be glad to show them to any one who wishes to see them. One thing that is quite marked in favor of the new drawn foundation in sections is that the bottom of the section is built on to as solidly and as perfectly as the top. This was owing no doubt to the fact of the bottom starter of the new article.

OUR OWN APIARY.

NEVER, in all the time that I have had to do with bees, unless it was during that remarkable year of 1870, when I was too much of a lad to know much about bees, do I remember of such a remarkable honey-flow as we are having from white clover. Our hives, especially at the out-yard, are stacked up two and three stories high. At this writing, July 12, honey is still coming in from clover, although it is evident, from the brown heads that have gone to seed, scattered through the fields far and wide, that nectar from this source, at least, will soon cease.

I stated in our last issue that basswoods would probably be a failure in this part, as no buds appeared on the trees; but it seems as if I must have been partly wrong, for the bees are

beginning to drop in at the entrances as if they were getting honey somewhere. - Mr. Vernon Burt, a few miles north of us, is very certain he will get some honey from basswood, because he has seen the promising buds on the big forest-trees. After all, I suspect it is these big trees that really yield the bulk of linden honey. Very often I have seen the small trees, loaded with blossoms, turn brown and go to seed, without a bee once going near them.

During the last two or three weeks I have spent many an hour helping the boys do the work in the apiary. While I might hire some one else to do it more cheaply, I believe nothing in the world is so helpful to a bee-journal as for its editor to go out into the apiary and see what the bees have to say about many of the problems that confront us. I believe, therefore, GLEANINGS can afford to have me "waste" a little time. There are several questions that I have been holding back, waiting for the time when I could lay them before the bees. Among them was the question of

BEES HANGING OUT—WHAT IS THE CAUSE OF IT?

I had a vague idea that, if we were to make sure that the bees were never crowded for room, in the first place, and the hives were properly shaded, with good-sized entrances, there would not be any of this hanging-out; and the result of careful experiment and observation this season seems to show that this is true. At our out-yard there has been no hanging-out, but quite a little of it at the home yard. The work in the home apiary at the beginning of the flow got behind. At the out-apiary I made sure to keep pace with the bees. As there would be no one present to look after swarms, it was decidedly necessary that the bees should not get into the *habit* of loafing. There was no loafing here, and only one swarm, and that came out several times while I was away.

As every one knows, hanging out and sulking at the front of the hives shows that something is not quite right. A colony in the height of the honey-flow should have no loafing or sulking bees. I told the boys I did not want to have one hive with its bees hanging out in front, even at night. They did not believe that the poor bees could *help* coming out when the nights were so hot; but I noticed that stronger colonies in the same apiary were busy at work in the sections, without a loafing bee in front. I said to myself, "We must make these other chaps (the loafers) get down to business like the others."

As I found years before, so this year, smoking them in did no good. They would come out again just as soon as they got through "rubbing their eyes." Giving them frames of foundation and plenty of room sometimes answered, but generally they would cluster out even then. Furnishing the bees a good deal of shade helped somewhat. Giving them very wide deep en-

trances sometimes caused them to go into the hives and go to work.

This hanging-out is indicative of swarming. Early in the season, perhaps the bees are a little cramped for room, and they get into the "habit" of loafing; and this habit, once established, is hard to break up; or perhaps the entrance is too small, or the h've not properly shaded. Any one or all of these conditions may start the habit, and the only way to break it up is to make the bees *think* they have actually swarmed. I am satisfied that, while the bees are loafing and hanging out at the entrance, they are waiting either for the queen or some of their number to start a swarm forth.

There were several of our colonies at the home yard that seemed to be very stubborn. Two of them would hang out in spite of the fact that I personally alternated every one of their frames of brood and honey with frames of foundation. The *habit* had been established, and, no matter what I did, they *would* hang out. Finally, the thought occurred to me to take the hive away entirely (a big two-story chaff one) and put in its place an entirely different hive—a single-walled Dovetailed made up of three stories. This was done and the frames put into the new hive. The greater portion of the bees were shaken out in front, and were made to crawl in at the entrance. The bees went to work, and there was no loafing from that time on. Another hive was treated in a like manner with the same result.

I am fast coming to believe that, in a well-regulated apiary, there should not be a hive with bees hanging out in front. Just think of the waste of over half a colony loafing and doing nothing for days until they swarm, and a super or two of sections without a bee in them! We know perfectly well that, when bees swarm, they will go to work—that is, providing they are put into another hive, and their mania satisfied.

In the foregoing I have enumerated a number of conditions that cause bees to hang out; but one I did not mention; namely, that of queenlessness. Several of our good strong colonies were working nicely until we took away their queens. They immediately began to sulk, and to hang out. They knew something was wrong, and I think they had a sort of idea if they could once swarm, all would go well again. So they thought they would hang out. When these same colonies were supplied with a queen, the loafing ceased and the bees went to work.

I have been watching the matter very narrowly, and I have about come to the conclusion that, for our locality, we do not want a colony with a caged queen or one queenless in the hive. Bees seem to do very much better when there is a queen laying, and brood in all stages; yet I recognize that some good apiarists succeed well with caged queens.

OUR HOMES.

And the man of God was wroth with him, and said, Thou shouldest have smitten five or six times; then hadst thou smitten Syria till thou hadst consumed it; whereas now thou shalt smite Syria but thrice.—II. KINGS 13:19.

Then came the disciples to Jesus apart, and said, Why could not we cast him out? And Jesus said unto them, Because of your unbelief; for verily I say unto you, if ye have faith as a grain of mustard seed, ye shall say unto this mountain, Remove hence to yonder place, and it shall remove; and nothing shall be impossible unto you.—MATT. 17:19, 20.

People who knew me in childhood, and those who have visited our place at different periods, often express surprise at a business of such magnitude, built up in so short a space of time; and especially so as I commenced entirely without capital, and with a comparatively frail body besides. Now, do not feel troubled, good friends of mine. I am not going to boast in this Home Paper. If it sounds like boasting, it is because you misunderstand me. I am going to write to-day that I may give you help in your own homes, and not that I may help or brag about myself. Please keep this in mind while I give you some suggestions that I hope and pray will be helpful to you. And let me say that the work I enjoy above all other things in this world of ours is in being helpful to my fellow-man. When I get among people, or in circumstances where my skill and experience are of value, then I am happy; and whenever I find myself in a place where it seems I am not needed, then I am unhappy; and so far as pay is concerned, as I get older I begin to long for the privilege of working where pay does not enter into the matter at all.

Many times visitors, and these friends of whom I have been speaking, have asked me the question, "Mr. Root, what is the secret you possess? Why is it you find so much to do, and how is it that you succeed in setting great crowds of people at work while others all about you are complaining that there is nothing to do, or nothing to do that will pay decent wages?" I think the answer goes along in the line of the first of the two texts I have chosen above. The man of God was "wroth." I like that word *wroth*; and I believe it would be a good thing for us all if a godly and sanctified wrath were to stir us up a little oftener than it does now. Why! some of these bright summer mornings, when the sun begins to make it feel unpleasantly hot, I have felt an almost overpowering inclination to sit still in the shade, and let things run themselves. Yes, I, like yourself, know exactly what it is to have these feelings; and I have prayed again and again for deliverance from this sin of half-heartedness. Now, you may think it a little funny, but the prayer many times seems to be answered by the prince of darkness, and he would very quickly run me into worse troubles than half-heartedness if I did not speedily call on the great Captain, under whose banner I am enrolled, for help and protection. Am I speaking in an enigma? Well, then, let me explain that my half-heartedness is often cured by seeing somebody else half-hearted or criminally stupid. Then my "Root temper" comes up. Satan prompts, no doubt, that I should wake up the half-hearted person with a rush; but old experiences warn me to be careful; and before doing any thing, if I breathe my little prayer, "Lord, help me to right this wrong in a right and proper manner," then I am pretty sure to keep in the straight and narrow path. Let me give you one among many illustrations.

Some time in the latter part of March, when those beds of Grand Rapids lettuce were just getting beautiful to the eyes of all beholders, they also seemed beautiful to our flock of chickens domiciled not many rods away. The weather was getting warm enough for them to begin to make exploring expeditions. They had been fed refuse lettuce from the greenhouse until they knew what it was. One day, when they wandered farther than usual, the whole flock caught a glimpse of the brilliant coloring under the rays of the March sun. I can imagine those biddies as they tipped their heads one way and then another, and ventured cautiously up to the edge of the lettuce-beds. No one was around just then, and that sifted rich mellow soil offered rare inducements for scratching and wallowing. No doubt there were angle-worms in that protected soil. Perhaps the chickens had not had a taste of the worms nor of the lettuce for some time back. I need not tell you the rest. You know something what havoc an enterprising flock of hens will make in just a few minutes in a bed of luxuriant garden stuff. For a time we kept them away by tilting the sash just enough to let in air, but close enough to keep out chickens; but this deprived our beds of the great benefit of a summer shower. We had tried frames of poultry-netting, to be put on when the sash was taken off; but these would cost a good deal, and they were more or less in the way when on the beds or off. I told the boys if the hens were driven away with a *tremendous scaring* I did not think they would come back again, especially as their forage-ground was off in another direction. Well, the boys chased the chickens off, but they came back just as soon as another opportunity offered. I made up my mind that, if the hens were sufficiently scared, they would stay away; but I could not think of a boy who would do the work according to my ideas unless I first gave him a copy. The boys were in their teens, and I am toward sixty. Notwithstanding this, I think I can beat any boy out in giving either hens or dogs such a fright that they will never want to come around that way again.

I finally found the hens, with the rooster leading and bossing matters, right in the mischief. I took off my hat and came up slowly until I was pretty well in the midst of the flock. Then with my hands and feet and voice I made such a racket among the poultry that I am sure the most of them will remember it as long as they live. I ran after the old hens and over them, and scared them with my hat until, out of sheer fright, they could not run any more; then I gave the rooster, as the ringleader, such a scaring that *he* could hardly cackle. They were glad enough to find refuge in their own quarters; and after they got breath enough they cackled over the event for an hour or more afterward. I do not know enough about hen language to tell just what they said, but I presume they thought it was monstrous to make all that racket and fuss about a little bed of lettuce. One thing, however, is certain: I have not seen them, either singly or together, around those lettuce-beds since. We did not have any poultry-netting to fuss or bother with, either. I know they remember it, because, when I go through their quarters on my wheel, on the way to the creek bottoms, they will cackle and run as if they thought they were to be chased again as they were on that eventful March day.

Now, it is the same way with dogs. I have told you how much trouble they make by walking over our glass sashes. If the dog is a big one, crash, crash, crash, it goes every step. I do not want to hurt the dogs, and I know the law would permit me to shoot them where they

come around and make us trouble without their owners. But I simply want the dogs to understand that our fourth-acre of plant-bees is forbidden ground. I have tried to have our boys give each dog as it comes around a good wholesome lesson by way of a fright, but they don't seem to get the hang of it as I do it. Let the dog alone until you get your hands full of sticks or stones, or whatever you can gather up hastily; then get up near enough so you can keep pretty close to him in the chase. Follow him with shouts and peltings, and he will soon learn where it is that he must not go.

A good many times I am impatient at the way people handle horses. A horse that is always starting before you are ready can be thoroughly cured of it by a little faithful whole-hearted work. The same horse or horses that will not start when you tell them to can also be cured by a little judicious use of the whip. Perhaps there are horses that never need the whip, but I have never found many of them. Valuable lives are lost every day because of half-heartedness in handling and training horses. Now, please do not misunderstand me, dear friends, when I go farther and say that valuable lives are lost, not only in body but in soul, because of half hearted parents. If you give up to the chickens, and give up to the dogs (or, if you choose, neighbors' chickens and dogs), you have simply lost your garden and its enjoyment; but when you give up to the child, and say you have done the best you could—that you could not make him mind—then you are responsible for the loss of an immortal soul; and you need not be surprised if your gray hairs are brought down in sorrow to the grave.

Before I get through with dogs and chickens I want to say a word about rats and mice. Since I have been trying to build up our business, again and again have rats and mice assailed us. When I protested, our people, different ones, at different times, would say, in effect:

"Well, you can not keep them out, and it is no use trying."

First, the cats would be "no good;" then the traps were no good; or the "rough on rats" was no good. I can not go into detail here; but on personal investigation I found that the cat had not been treated properly. Many times pussy was overfed. Then there were no cat-doors so these faithful friends could have access to every nook and cranny. The traps were not properly examined daily. Again and again have I found trapped mice left until they were smelling badly. The bait was old and dried up. The traps were not "daintily" adjusted so as to go off at the first touch. For rats, the steel traps were not properly smoked to remove the smell of former transactions; and they did not try bedding them in the sawdust or fine dirt right under the runs. After I taught a boy (or girl either, for that matter) just how to manage traps, we had little or no further trouble. Several times I found people who declared they had used "rough on rats," and it did no good; but upon inquiry they had not even once read the printed instructions accompanying each box. Oh how much trouble I have had from things that would not work because the party to whom the thing was intrusted never read the "directions for use"! I have had grown-up men and women coolly inform me they threw the directions away without looking at them.

I once sent out two old farmers into the field to use a Meeker disk harrow. They drew it around the lot almost half an hour upside down, without ever so much as looking at the directions securely tacked on the machine, telling how to use it. Somebody will say, "Oh! you are talking about hired help; but if these

same people were working for themselves they would, of course, take some interest in what they were doing." Well, I have watched this thing, and I am glad to be able to say that these same people, when they were working for themselves, in and around their own homes, managed pretty much the same way. They do not give the matter in question enough thought, energy, and vehemence to make it succeed. Again and again these friends of mine around me say to me, "Oh! you might as well give up; the thing is no good. We have tried it in every way, shape, and manner, and it positively will not work." But it does work, sooner or later, when I get hold of it. Perhaps some of them think I make a big fuss about nothing; but I certainly succeed in keeping people at work, and in paying them their wages every Saturday night.

Let me digress right here to say that of late years it is my son and son-in-law who should have the credit of managing the greater part of our business, and not myself.

A good brother who lives far away sent us \$3.00 for some goods to be sent by mail. He wanted first \$2.40 worth of foundation; then he wanted some slates to hang on his hives. He said in his letter he wanted his goods as soon as they could be got to him. The foundation was already packed and put up, and could have gone by return mail. The slates were supposed to be in the counter store. In order to make one package, the letter went to the store below to have the slates sent up. Where goods go by return mail, or, say, next day, we have not been in the habit of receiving the money; therefore, when it was discovered that some slates were ordered but none were in stock, the letter was held until the slates should come. In the mean time the slate-maker reported he was too busy on other jobs to fuss with little slates for hives. At this crisis the letter should surely have gone back upstairs to have the foundation mailed, informing our customer in regard to the slates. Not so, however. Nothing was sent and nothing was done until I investigated the matter, fully two weeks after the money reached us. I told our friend to make out his bill for damages, and we would try to pay it. And may I right here intimate that a sure and complete remedy for all cases like this last one is the scripture injunction to love your neighbor as yourself? Any man who tries even a little to put himself in his neighbor's place would not be likely to see his neighbor lose a part of his honey crop when nothing at all prevented his having at least the greater part of his order go by return mail; and, in fact, love to God and love to one's neighbor should be a perfect cure for all half-heartedness of whatever nature.

Just one more illustration right here:

A week ago the man who runs the Planet cultivator told me he could do ever so much better work, and save his strength at the same time, if the handles of the cultivator could be raised.

"Why, Mr. B., this cultivator is made just on purpose so you can raise or lower the handles to any point you wish."

"Well, I supposed that it was made in that way, but it is not. Loosening the bolts which seem to be made for that very purpose will not permit the handles to go up and down a particle, as you will see."

I took hold of the wrench, got down on my knees in the dirt, and I did see. What do you suppose I saw? Why, I saw that, when the cultivator was set up, four or five years ago, the man who put it together put a certain casting on upside down; and in all that time, all

the men who had used that cultivator had been annoyed and hindered in their work summer after summer. Not one of them had, until this present time, informed me that the cultivator as it was could not be made to do its best work. Why didn't some of them talk to me as I came around, and tell me about it?

A few days ago our young chickens were going, one every night. After a brood of eleven had gone clear down to three I began making a stir in the neighborhood. About a week before, Mrs. Root had befriended a "tramp" cat. After the cat had been fed and made at home—that is, when she became sufficiently acquainted—she brought forth from their hiding-place four bright kittens, one after another. I soon decided that the tramp cat was responsible for the loss of the chicks; but the whole family said I was mistaken, as she was so kind and gentle, etc. Finally the teamster said one of the men who was mowing the lawn told him he saw the tramp cat with one of the chickens in her mouth. That was probably one of the first of the eleven. I passed the man ever so many times a day, and he could not scrape up energy enough to tell me he saw the cat that was taking my chickens one by one. I questioned him about it, and remonstrated because he did not tell me at once, instead of telling somebody else; but he had nothing to say. After the cat was killed, then (not before) he volunteered the information to Mrs. Root that it was not the cat that had the four kittens at all. It was a yellow cat that he saw with a chicken in its mouth. According to this I had killed an innocent cat, and left her four "orphling" kittens to get along the best they could.

Now, a few chickens and a cat are but trifles, I know; and perhaps I should not mention them at all were it not that I am expecting some choice Minorcas to hatch some time this week, and I do not propose that one of them shall be taken off every night, by considerable. As I said, chickens and kittens are but trifling matters; but we have more or less the same state of affairs all over our establishment. In one of our elevators, belting to the amount of almost a hundred dollars has been destroyed because we could not get the men who use the heavy freight-elevator to pull the lever clear up sharp either to one side or the other. When the lever was left pulled part way a belt was burned, so a new one had to be put in its place. It would be exceedingly convenient with our freight-elevators to let each man who is moving freight handle the elevator, but we had to give it up. Two men have now the elevator in charge, and a sign announces that they must be called whenever it is to be used. The whole great business world realizes how hard it is to find men who will learn all about the business they are connected with, and make it their study to save their employers from loss. With almost a world full of people wanting something to do, men who will think, act, and talk so as to save loss are always hard to find.

The loss of belting and the loss of life are serious matters, especially when life is lost by somebody's half-heartedness; but, my friends, there are more important problems that meet us almost daily than even this. The Master tells us to beware of him who is able to destroy both soul and body.

In the last of our two texts the disciples asked the Master why it was they did not succeed in banishing the evil spirit from one who was brought to them. He told them it was because of their unbelief; or, as I should put it, in consequence of their half-heartedness. They failed in routing the evil spirit very much as you and I fail in getting rid of rats and mice—par-

don me for the illustration. People all around about us admit themselves helpless victims of evil habits. One man said to me, not long ago, when I was remonstrating with him, that he could bring me a testimonial from different physicians to the effect that he was no longer responsible for his occasional sprees. He said the doctors told him that he could not help it, even if he tried. May God have mercy on the doctors if they really did say this. Our readers are aware, of course, that I would not say, under any and all circumstances, that a man can by his own will power break off every evil habit; but I do say it is my belief, that, while there is life and reason, any person can, with God's help, be emancipated from any evil habit.

But a few hours ago a poor friend wrote me, telling of his struggles in breaking the bands of Satan. In his despair he was contemplating something that is, if not suicide, almost next door to it. Although a professing Christian, he said he had "lost his will power." Just as soon as he explained to me the circumstances I felt like rejoicing that I could furnish a remedy that would help him out of his troubles as safely and surely as you would help a man out of a millpond by taking hold of his hand. Then my enthusiasm was somewhat dampened because I remembered my remedy would require "will power." Please do not smile when I tell you that I wrote to him to change his diet to one of lean meat; cut off starch and sugar entirely. If he can do this he is saved; but, alas! it requires will power. By the way, when I meet either a man or a woman of late who has gone through several months on a clean lean-meat diet, I feel like lifting my hat to such, out of reverence and respect. The person who can control his appetite to the extent of cutting off the last crumb of bread, so that his diet may be absolutely unfermentable, has will power to fight almost any temptation that flesh is heir to. I do not know just what effect the lean-meat diet would have on intemperance; but I suspect it would take off a great part of the craving for intoxicants. If there is any one among our readers who can give me any information in regard to this matter, either for my own private benefit or for the public, omitting the name if he chooses, I should be very glad indeed to get such testimony. I want to know to what extent our diet is responsible for our peculiar besetting sins.

Now, then, dear friends, I suppose God leaves us all to choose. Shall we drift along in idleness and in shady inaction until disgust of life, and then suicide or imbecility, comes on? or shall we waken up and use our brains and muscles and make things come into shape as they ought to? Sin is in the world. Shall we let it go on, or shall we say, "God helping me, this shall continue no longer"? There are illustrations all about us, showing what energy, perseverance, and vehemence will accomplish. There are also illustrations all about us of the result of letting things drag, and go as they happen. Shall we get along through life contriving to get rid of the precious hours God has given us, with the least possible exertion or trouble, until we slip into our graves? or shall we stand up like Christian of old, with our armor on, and rebuke sin and sloth and half-heartedness at every turn?

SELLING RECIPES FOR DOING THINGS.

Dear Gleanings:—In the Chicago American Poultry Journal for April, '97, page 122, is an advertisement headed "Bees for Nothing." I have not the \$3.00 to throw away, so I do not feel like investigating it. The advertiser is A. F. Randolph, Green Valley, Ill.

Ionia, Mich., June 12.

HARMON SMITH.

As it is the business of GLEANINGS to keep its readers posted in regard to every thing new that comes up in bee culture, we sent the three dollars. It is printed on page 11 of a little price list of fancy poultry. Here is the three-dollar recipe verbatim:

DIRECTIONS FOR TAKING RUNAWAY SWARMS OF BEES.

Prepare an ordinary box hive by having it sweet and clean; place a stick one-fourth of an inch thick about six inches from the top across the inside of the hive and a similar one crosswise of the first, six inches lower down for supports to the comb. Now take a piece of empty comb or comb foundation and fasten to the inside of the top of the hive by melting a bit of wax and sticking the comb fast while hot; now drop a few drops of the sweet oil of anise on the comb and the inner walls of the hive; now fasten on the bottom-board, letting it extend an inch or two beyond the hive on the front side, leaving a slot four inches long and three-eighths of an inch deep for an entrance; on the first real warm day in May, when the bees begin to swarm, place your hive in a shady tree, not necessarily very high from the ground; the bees will swarm from the parent hive; and as soon as they settle they will send out scouts to look for a new home; and, if not successful, the swarm will make a flight and settle, and send out scouts again as before, and continue to move and scout until they find a hollow tree or some cavity that suits them, when they immediately take possession. Now, if you have a few hives scattered about through your orchard, and a swarm is passing within two miles, the scouts will find your empty hives ready for occupancy, and will lead the swarm to the hive. If your hive is secured firmly, it can remain in the tree until cool weather before removing.

Our readers will notice that, in the above, there is not a single idea that has not already been published repeatedly in our journals. Several years ago we had quite a discussion in regard to the matter, and many articles were published in regard to it. I confess that it somewhat revived my old enthusiasm in regard to decoy hives. But, hold on a minute! There is one new feature. It is the statement to the effect that, if a swarm passes within *two miles* of your empty hives, the scouts will find them. We did not know before that a swarm of bees keeps scouts out for two miles in every direction; and I am afraid we do not know it now. We have here another illustration of the fact that I have for so many years emphasized: No good thing ever comes, or, perhaps I should say, no new thing ever comes from those who advertise recipes or secrets for a certain sum of money. Now, if anybody else who takes GLEANINGS knows of any valuable secret offered for a certain sum of money, just let GLEANINGS know about it and we will enjoy it all together instead of sending three dollars individually for one and the same thing.



He shall be like a tree planted by the rivers of water; . . . his leaf also shall not wither.—PSALM 1:3.

I have before mentioned that my neighbor, C. J. Green, found a little spring on one of his lots. He piped it down into his dooryard, and near his greenhouse he has a little fountain. Now, during a severe drouth like the present there is not very much water—perhaps as much as would fill a rye straw or a little more; but even this small amount keeps two considerable tanks full, and the surplus runs the tiny foun-

tain; and right where the overflow from this fountain reaches it, is a small Downing mulberry-tree. The tree is fairly filled with the most luscious mulberries I ever tasted; and the tree is making such a luxuriant growth that it is really a pleasure to look at it. While I stood enjoying it, just between sundown and dark, I was reminded of three things: First, that the Downing mulberry is a most delicious fruit when grown to perfection; second, that it seems to be a water-plant. Like the willow, it delights in water continually; third, the whole thing was a most beautiful reminder, by way of an object-lesson, of that wonderful verse in the first Psalm. We have a Downing mulberry-tree on our lawn, but the berries are small, and insignificant in flavor, compared with the one I have just spoken of. But I am inclined to think it is not altogether the water. Occasionally there are trees that bear larger and finer fruit than others. Mr. Green has already set some grafts on another mulberry-tree on his premises to see if he can get equally large and luscious fruit.

"HAPPY SURPRISES;" THE PORTER APPLE.

Nearly a year ago a niece made me a present of a luscious apple, so very large that I at once made a trip of investigation. She said she did not know the name of the apple; the tree was on the premises when they moved there. I was astonished to find that I had never before known of so large an apple, almost if not quite as early as the Early Harvest. I sent a sample of the apple to our Ohio Experiment Station, and they replied right off that it was the Porter. Last fall I sent to our nurseryman, Mr. Job Green, of Granger, Medina Co., O., for one-fourth dozen trees. Well, yesterday, July 8th, the timothy in our orchard was so high that we cut it and put it into the barn; and after the grass was out of the way, one of my Porter apple-trees, set out just last fall, and not more than four or five feet high, was found to contain two great beautiful apples almost ripe. Now, if you have never tasted this apple, plant a tree in your dooryard, in a good rich place, then you or your children will have a good lot of "happy surprises" in the way of a beautiful fruit when everybody wants it most.

THE FOURTH OF JULY, 1897.

This present year seems peculiar in at least two respects. First, it has given us the coldest day since the Weather Bureau was started, some 27 years ago; and on the 4th of this present month the thermometer registered the highest point (according to the Weather Bureau) in 17 years. On the north side of our brick building the thermometer registered half a degree above 100; but on the porch over at the house it was only about 97. The Weather Bureau reports it at their office, on top of one of the tallest buildings in Cleveland, somewhere about 99, if I am correct. It is hard to make a correct statement, because the surroundings have so much to do with the temperature.

Unfortunately—at least so it would seem—it was announced that your humble servant would give a talk in a church five miles away from my home, on Sunday afternoon. I did not want to take a horse out in such sultry weather, and, in fact, I did not want to ride in a buggy, so I rode on my wheel. Several urged that it was positively dangerous. But I knew pretty well it was not dangerous for me, and I was agreeably "surprised" to find myself much more comfortable on the wheel than sitting indoors in the shade. As my talk was about "happy surprises," my experience came in very opportunely. I left home at one o'clock, and

got back about half-past three; so I "took in" the highest temperature of the torrid wave.

Well, the hot sun and hot wind did not hurt me at all (oh! I forgot; I do not know but it did make my nose a little redder than usual), but it cooked our great big Columbus gooseberries, and almost spoiled our crop; but some of the berries of smaller size, such as the Downing and Houghtons were harmed but little or none at all. Our new friend *Eleagnus longipes* was also roasted more or less by the heat. Strawberries, unless they had some sort of protection, were more or less cooked. And this reminds me that it is an excellent thing to have at least a part of your strawberries grow in the shade. The shade of a large tree is just what is wanted, providing you do not let the roots of the large tree take all the moisture from the strawberries. A sub-irrigating bed under the shade of a tree, with the bottom of the bed cemented so it will hold water, would fix it to a dot. I am inclined to think some growing corn on the south side of the strawberries would answer a very good purpose. I studied the matter in several localities on our grounds enough to be certain that, with a season like this, shade of some kind would be a profitable investment to the strawberry-grower. I have not had a chance to test plants on the north side of a building or a high board fence, but I think it would be just the thing. Of course, this is only for late strawberries. For early ones you want the sun at least the fore part of the season; but for *raising plants* during the month of July, even if you have plenty of water, some shade during the heat of the day would help matters along very materially.

GARDENING FOR JULY 15; WHAT CAN WE PLANT?

You can plant almost all kinds of beans (except the large limas), and they will usually escape frost, Henderson's bush lima included. Beets will do nicely if you have a market for table beets, or beets tied up in bunches. You can put out carrots, cauliflower, and celery-plants. Ford's Early sweet corn will do nicely if planted on good ground. Cucumbers are just in their element this hot July weather. Give them good rich ground; and if you have plenty of rain, and keep the bugs off, you will have a crop. Grand Rapids lettuce will do nicely, and will sell in almost any locality if you shade it from the hot sun. Have it in rich ground, and make it crisp and white. You can sow all sorts of onion seeds for sets; and the American Pearl may be sown now, not too closely, and left to stand over winter. The only trouble is its inclination to send up a seed-stalk in spring. But you can fix this by pulling out every one as soon as it begins to show a seed-stalk, and selling it as bunch onions—see our bunch-onion circular. If you want to make a plantation of the winter onions, now is just the time to do it. Gather the sets, and plant at once. Any of the early peas will make a crop if planted now; and in our locality we generally get large peas, like Champion of England, when sown before July 15. We are going to put in a lot of them right away. Radishes you may plant every day for the next 60 days; the same with spinach. If you have great big strong plants ready to blossom you can put out tomatoes now. All kinds of turnips can be sown now, but I would not put in a great many if you want them for table use, because they get too old in just a few days after they are just right; and, while I think of it, get in plenty of wax beans so you can supply the market until the time frost spoils them. Bunch yams and vineless sweet potatoes will

usually make a crop if put out now with sufficient care so they commence to grow right away. You can also plant potatoes at this late date if you have some good seed already sprouted, having the sprouts not too long. Jersey Wakefield and Henderson's Early Summer cabbage-plants will do nicely if put out now. Late kinds will head up if the fall is favorable; and we consider it the very best time to grow cauliflower by putting out your plants by the middle of July.

Last, but not least by considerable, we consider July the finest month in the whole year to put out strawberry-plants if you have learned the knack of making them grow in hot weather. Potted plants, or plants taken up with our transplanting-machine recently illustrated, will go right along all right unless you have a tremendous drought. I think it will pay every strawberry-grower to learn how to increase his stock of choice high-priced plants by planting in July. If the weather is very hot and dry, keep things moving by the use of plenty of water, and shading them with cotton cloth.

JADOO FIBER.

Doubtless many of you have read of this new material for florists and gardeners. We are using it for potted strawberries; and it is so much lighter than soil I have hoped that we might be able to send the new strawberries out in the shape of potted plants *by mail*. Of course, the postage will be more; but you will have a plant that will put out runners, and push ahead the very day you get it in the ground. When I have samples ready to mail I will let you know, and I will also report in regard to this new material, jadoo. We are also testing concentrated jadoo liquid. Permit me to add that jadoo itself looks very much like nice swamp muck. It costs at present about \$30.00 a ton.

IS SWEET CLOVER A NOXIOUS WEED?

How to exterminate sweet clover after it has got a good start is something that I am very much interested in just now. If you or any one else knows of any practical method by which one can kill it out, almost everybody here, and especially myself, would be very thankful for the information.

Eight or nine years ago I bought some sweet-clover seed of you and sowed it on my own premises, and also along the public highway. A friend of mine got some seed soon after, and he too sowed it along the roadside. Now the clover is pretty well set over perhaps five or six miles of the public highway. At first but little attention was paid to it, no one seeming to know what it was; neither had I the least idea what I was getting into when I sowed it. Now it is growing up along the road higher than the fences, and the farmers are becoming alarmed, and we are being cursed, criticised, and abused, some saying that we ought to be prosecuted.

There are scattering plants of the clover over a great deal more territory than that which I have spoken of as being well set; but that we have cut out mostly with hoes; some of the more thickly set places I have mowed, and then broken the ground with the plow. Whether that will kill it is a question. Some say the seed will lie in the ground for years, and then come up.

I am very sorry that I was instrumental in introducing something that is so unwelcome as sweet clover seems to be to the farmers here. I also own and manage a farm myself; but I do not care so much on my own account as I do for the ill feeling which it has caused among my neighbors.

Any information on this subject as to what extent I am responsible, or what I should do to kill it out, is what I wish.

Chrisman, Ill., June 28.

GEO. W. FAIR.

My good friend, you and your neighbors are certainly making a big mistake. I have studied sweet clover all over the State of Ohio and in other States, but I have never yet found it in pasture lots, in meadows, or in cultivated fields.

I can not see why it should be called a noxious weed any more than common red clover, unless it is that horses and cattle must learn to eat it before they take to it as readily as they do to red clover. But this is not at all strange, for cattle in Florida will not eat corn until they have been taught. Sweet clover is in our neighborhood, along the roads, as high as the fences, but nowhere else. It grows on the dry hard clay banks by the sides of the railroads, where no other weed can find a foothold; but my richly cultivated ground is also right along by the railroad, just over the fence, and yet our boys will tell you they never find sweet clover as a weed anywhere. If you and your friends will cut your clover when it is knee-high, or a little more, you will find it will make excellent hay; and if it were really desirable to banish it from the roadsides, the matter is easily accomplished by cutting it off before it goes to seed. Teach your neighbors to use this valuable clover, and all prejudice will soon disappear. Put a fence around it and turn the cattle right in—that is, if cattle are not permitted on the roadside—and see how quickly it will disappear. If you want the ground for other crops, turn it under with a chain as you would ordinary red clover, and you will find it worth as much as or more than any other clover known, as a fertilizer.

Pass this journal around to your neighbors and I will send you more, or I will have some slips printed, to be handed out free of charge, if nothing else will cure this prejudice. I am surprised that you say nothing in regard to its value as feed, for I am convinced that some of your horses and cattle have already acquired a taste for it and a liking for it; and their "opinion" in the matter is certainly unbiased. I do not know why in the world you should go to the trouble of trying to cut off the thick old stalks with a hoe. If you really want to get rid of it, wait till next spring, when the old stalks will all be dead and gone; then plow under, pasture off, or cut the young shoots before they get too far along to be tough and hard. I can not believe the seed will lie in the ground for years; for if it did it would surely trouble us among our crops. We have between 15 and 20 acres under cultivation, and sweet clover is growing high and rampant all around my cultivated fields. Yes, it is at this writing, July 6, six feet or more, and has been growing so for years past, though we never find it in our strawberries at all, while other weeds are a terrible nuisance just about fruiting time. In traveling I have talked with others, and asked questions in regard to the habits of the plant; but I have nowhere seen it behave any differently from what it does here in Medina.

PUDDLING SWEET-POTATO (AND OTHER) PLANTS.

Friend Root:—I was in another part of the county a few days ago, and saw people there planting (or, rather, setting) sweet-potato slips. They do not use any water at all, and plant at any time during the day. Instead of watering they make a bucket of very thin mud and dip the roots of the plants in it when planting. They claim that the method is as sure as watering, and much cheaper. The only condition is that the plants should be raised in an open bed so that they may be rather tough. Those raised under glass would not do.

KILLING WEED SEEDS BY FERMENTATION.

You undoubtedly have had considerable trouble with weeds coming from the seeds in the manure you buy from the livery stables. You may avoid the trouble by having the manure thoroughly fermented before using it. Have it put in heaps as large as possible, in a hollow cemented or well-paved floor. You may mix dead leaves, straw, rich dirt, or any thing you wish. Have it thoroughly watered twice a week, enough to prevent it from burning, and make it rot thoroughly. The surplus water that will seep through must be received in a

hole or cistern, and pumped over the heap again unless you prefer to use it for irrigating purposes.

It is difficult to explain how it is, but the fact remains that the manure thus treated improves considerably in fertilizing value—it is estimated 100 per cent, or about; and, furthermore, the heat therein developed kills all the weed seeds and an immense quantity of noxious insects and other plant-disease germs.

In Switzerland, Belgium, and most parts of other well-cultivated countries of Europe, no manure is used without having gone through this process, which takes about three months. Another advantage is that the manure thus thoroughly rotted does not burn the vegetation in dry weather as the fresh manure invariably does. ADRIAN GETAZ.

Knoxville, Tenn.

Your suggestions are both good, friend G. Instead of using mud, however, for puddling the roots of the plants, a good many use a mixture of cow manure and dirt. In regard to fermenting manure to kill weed seeds, we have practiced this for years; in fact, we had a cistern made to catch the liquid manure, and a pump to pump it on the heap. The process is given in a little book sold by the O. Judd Co., entitled "Baumer's Method of Making Manure." It works all right, and the manure is all that is claimed for it, but it is an awful sight of work. We could not afford to ferment manure in this way for farm crops, nor even for garden crops, at ordinary prices. For making potting soil for florists, or for beds in intensive gardening, it is all right. If worked properly, the compost, when finished, is very much like the manure we find under old stables. Whenever I find where an old barn has been moved away, or where a manure-heap has remained for years, so as to be thoroughly rotted, I am willing to pay a good price for the fine compost. Another thing, the average American gardener does not take kindly to this working over manure-heaps. We have to get an old gardener from some of the old countries to work at it. For high-pressure gardening there is no question but it will pay. But we get into a fashion of rushing things so much that it is hard to take the time and trouble to prepare plenty of good old rich compost; and for many crops and purposes, manure just as it is taken from the stables answers very well. For spinach, lettuce, or any other crop where strong foliage is needed, fresh manure, just as it is dropped in the stables, seems to be even better. There has been some dispute as to whether all kinds of weed seeds are killed by the fermenting process; and I believe there has been a government bulletin issued on the whole subject.

ONIONS FOR WINTERING OVER IN THE OPEN GROUND.

The Whittaker onion did not stand the climate here, as they were all dead this spring. The Pearl, that I experimented with here, winter-killed also, but the Egyptian did nicely, and I shall want 2 or 3 bushels this fall. I wish you would give me your mode of culture of the White Multipliers; they do the best with me.

A. P. JONES.

We manage the White Multipliers exactly as we do the potato onions. Plant them at about the time that farmers are sowing their wheat. They make quite a little growth by fall, and, as a rule, winter without any loss. This spring we have had our first trouble by their showing seed-stalks. We never had a seed-stalk on a White Multiplier before, and did not know it was possible. The only reason I can give is that we put them out earlier than usual last fall, and they made an exceedingly strong growth; but why this should put it into their heads to set up seed-stalks when they never grow seed at all (at least I did not know they did) is more than I can tell. We hoe and culti-

vate all of these winter onions in the spring, exactly as we would any onions; and the Breed weeder is just the thing for them after you once get the surface fined up soft and mellow. At present writing, June 16th, all of our onions that were wintered out are beginning to show signs of maturity.

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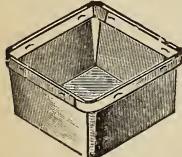
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